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WALES AND THE ATLANTIC ECONOMY

An interesting feature of the international economy of the nineteenth century was the inverse relation between fluctuations in the rate of capital formation in Great Britain and the countries of new settlement overseas.[1] During periods when emigration and foreign lending were booming, i.e., 1847-54, 1866-73, 1881-88, 1903-13, the receiving countries, particularly the United States, experienced a vigorous upswing in capital construction such as railways and buildings. At such times the export sector in Great Britain was very busy, with home construction relatively depressed. During the intervening periods when emigration and foreign lending were in relative decline, the United States went through a phase of stagnating capital construction, while simultaneously Great Briatin experienced a boom in her own capital construction. Over the long period there was clearly a community of interest between the lending and borrowing countries. In one phase the borrowing country went ahead briskly with investment in capital equipment, aided by loanable funds, migrants and capital goods from the creditor country; in the next phase it was the turn of the creditor country to add substantially to its own capital equipment, aided by a copious flow of food and raw materials imported from the debtor country.

These inverse long swings in capital construction throw further light on the pattern of migration. Each wave of trans-Atlantic emigration was in essence a rural exodus. When capital exports to the United States were booming and home construction in Great Britain was languishing, surplus labour on the land tended to migrate to America instead of to urban counties at home; in the next phase when investment in Britain increased substantially the workers released from

[1] For a detailed analysis see Brinley Thomas, *Migration and Economic Growth* (Cambridge University Press, 1954), Chaps. VII, VIII, X and XI.

agriculture flocked into the rapidly growing towns and emigration declined. There was thus an inverse relation between internal and external migration. A wave of home construction drew on the agricultural reserve army for urban employment at home; and a wave of foreign investment drew on the agricultural reserve army for urban employment abroad.[2]

The purpose of this paper is to fit Wales into this evolving international system. The lack of separate Welsh statistics of income, investment, exports and imports puts severe limits on the analysis, but we can manage with the help of the population census and the main indices of industrial and agricultural production since the middle of the nineteenth century.

I. Wales's External Migration Balance Since 1851

We shall begin by comparing the external migration experience of Wales with that of England, Scotland, Ireland and Sweden over the century 1851 - 1951. In almost every decade in this era most countries in Europe lost a portion of their natural increase through migration; the amplitude and time-shape of these losses are an interesting index of the growth and fluctuations of their economies. The net loss or gain by migration may be fairly accurately calculated for periods between population censuses by taking the increase in the enumerated population from one census to the next, say 1851 and 1861, and subtracting from it the excess of births over deaths in the same period. A net loss by migration occurs when the excess of births over deaths exceeds the increase in the enumerated population; a net gain by migration occurs when the excess of births over deaths is less than the increase in the enumerated population. The experience of different countries may be compared by expressing the migration balance, positive or negative, as a rate per 10,000 of the mean decennial population; it is sometimes useful to show the migration losses as a percentage of the natural increase.

[2] The old idea that huge waves of immigrants were attracted to the American West by the lure of free land has been discredited by modern research. The following conclusion by Professor Fred A. Shannon is worth noting. 'For that matter, outside the cotton belt, the majority of the Westward moving population did not settle on farms. Farmers from farther East took up the Western lands, but they also swarmed to Western cities and towns. When the Eastern city labourer managed to pay his fare or "ride the roads" westward, he also was most likely to establish himself in a mining camp, town or city.' Fred. A. Shannon, *The Farmer's Last Frontier* (Farrar and Rhinehart, Inc., New York, 1945), p. 357. Professor Shannon suggests a new hypothesis: instead of Western agriculture being a safety valve for the Eastern industrial worker, the rise of the city was a safety valve for rural discontent.

The net migration rates since 1851 for Wales and the other countries are set out in Table I.

TABLE I

NET LOSS (−) OR GAIN (+) BY MIGRATION IN WALES, ENGLAND, SCOTLAND, IRELAND, SWEDEN AND U.S.A., 1851-1957

Period	Wales	England	Scotland	Ireland North	Ireland South	Sweden	U.S.A. (l)
	Annual rate per 10,000 mean population						
1851-61	− 28	− 16	−101		− 194[c]	− 7	+ 98
1861-71	− 47	− 7	− 44		− 169	− 37	+ 67
1871-81	− 35	− 5	− 28	−119	−127	− 32	+ 51
1881-91	− 11	− 23	− 58	−108	−163	− 74	+ 80
1891-1901	− 5	− 2	− 13	− 55	−118	− 37	+ 37
1901-11	+ 45	− 19	− 57	− 52	− 82	− 36	+ 63
1911-21	− 21	− 16	− 50	− 47	− 88[d]	− 11	+ 32
1921-31	−102	+ 3	− 80	− 82	− 56[e]	− 15	+ 27
1931-39	− 72	+ 24	− 8	− 5	− 63[f]	+ 9[h]	+ 0·8
1939-46	+ 1[a]		− 3	− 23		+ 12[i]	
1946-51	− 18[b]	+ 6	− 92	− 63	− 84	+ 28[j]	
1951-57	− 19	+ 12	− 53	− 70	−134[g]	+ 13[k]	

[a] 1939 - 48.
[b] 1948 - 51.
[c] Based on G. Sundbärg, *Den Svenska och Europeiska Folkökningsoch Omflyttningsstatistiken, Emigrationsutredningen* (*Kungl. Boktryckeriet*, Stockholm, 1910), Bilaga IV, p. 99.
[d] 1911 - 26.
[e] 1926 - 36.
[f] 1936 - 46.
[g] 1951 - 56.
[h] 1931 - 40.
[i] 1941 - 45.
[j] 1945 - 50.
[k] 1951 - 55.
[l] The U.S.A. decades are 1850 - 60, 1860 - 70, etc.

Sources:
Wales: Population Tables of Census Reports, 1851 - 1951; Registrar General's Annual Statistical Reports, 1851 - 1951; Registrar General's Quarterly Returns, 1931, 1939 and 1951. The original figures are set out in Table II. Allowance has been made for under-registration of births in 1851 - 61 and 1861 - 71.
England and Wales.
Scotland and N. Ireland: N. H. Carrier and J. R. Jeffrey, *External Migration: A Study of the Available Statistics, 1815 - 1950* (General Register Office, 1953), Table II, p. 14.
Sweden: *Historisk Statistik för Sverige, Befolkning, 1720 - 1950* (Statistiska Centralbyrån, Stockholm, 1955), p. 37. *Statistisk Årsbok för Sverige*, 1958, p. 47.
U.S.A.: S. Kuznets and E. Rubin, *Immigration and the Foreign Born* (National Bureau of Economic Research, New York, 1954), p. 94.
Southern Ireland: *Statistical Abstract of Ireland*, 1958, Table VII, p. 17.

The pattern traced by Wales diverges sharply from that of the rest of the British Isles; this is brought out clearly in Fig. I. Let us first examine the period 1851 - 1911. From a peak in the sixties the rate of loss by migration in Wales declined steadily until in the first decade of this century there was a substantial gain through immigration. The half century 1861 - 1911 in the history of Wales was a period of sus-

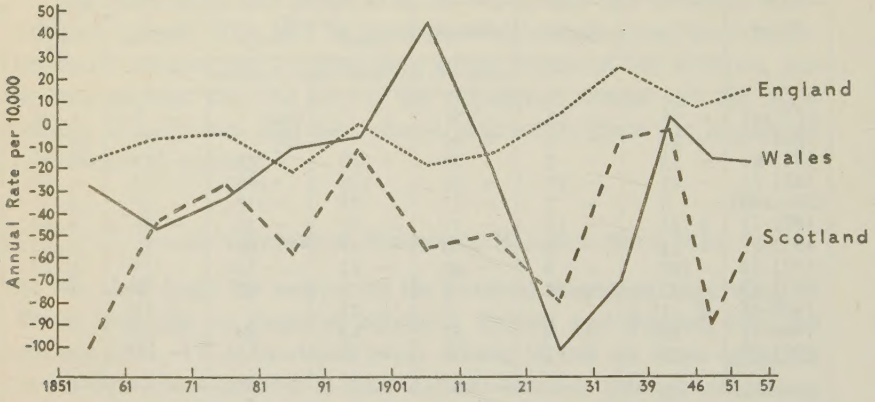

FIG. I. Decennial net gain or loss by migration: Wales, Scotland and England, 1851-1957. (Annual rates per 10,000 mean population.)
Source: Table I, p. 171.

tained and rapid economic growth. The contrast with other countries is most evident in the 1880s when there was an emigration peak for England, Scotland, Ireland and Sweden. In that decade these countries contributed substantially to the large volume of trans-Atlantic emigration, but the rate of outflow from Wales was negligible. The difference is again marked in the years 1901 - 11 when Wales was unique in having an annual rate of immigration of 45 per 10,000 population, whereas all the other neighbouring countries experienced large losses through emigration. At the beginning of this century Wales was absorbing population at a rate not much less than the United States.

A violent reaction came in the inter-war period. In 1921 - 31 Wales suffered by far the heaviest outflow—an annual rate of 102 per 10,000 population; the suddenness of the change is illustrated in Fig. I. In the years 1921 - 39 the population of Wales actually fell from 2,656,000 to 2,465,000; the net loss by migration was 450,000. The whole of the natural increase of 259,000 was lost, together with an extra 191,000. Scotland and Northern Ireland were also hard hit in the twenties, but, unlike Wales, their losses were relatively low in the thirties. England registered a net gain in the years 1931 - 39 as a result of the influx from Ireland and the depressed areas, and even from some overseas countries.

TABLE II

WALES: NET LOSS (−) OR GAIN (+) BY MIGRATION, 1851-1957
(Thousands)

Period	Initial enumerated population of area as constituted at end of period	Final enumerated population of area	Intercensal increase or decrease	Natural increase	Net loss or gain by migration
1851-1861	1186·7	1312·8	+126·1	+162·4	− 36·3
1861-1871	1296·0	1421·7	+125·7	+188·7	− 63·0
1871-1881	1420·4	1577·6	+157·2	+209·3	− 52·1
1881-1891	1577·5	1776·4	+198·9	+216·7	− 17·8
1891-1901	1774·8	2015·0	+240·2	+249·6	− 9·3
1901-1911	2033·3	2442·0	+408·8	+310·3	+ 98·5
1911-1921	2420·9	2656·5	+235·6	+290·0	− 54·5
1921-1931	2656·5	2593·3	− 63·1	+205·6	−268·7
1931-mid 1939	2593·3	2465·2	−128·1	+ 53·2	−181·3
Mid 1939-1951	2465·2	2585·9	+120·7	+129·7	− 9·0
1951-1957	2584·0	2611·0	+ 27·0	+ 54·5	− 27·5

Notes: (i) In arriving at the natural increase for the periods 1851-61 and 1861-71, allowance has been made for the under-registration of births.
(ii) Up to and including 1910, figures relate to the registration counties of Wales. Since 1911 figures relate to the administrative area of Wales.
(iii) To prevent boundary changes distorting the estimates of migration flows, it has been necessary to relate changes in enumerated population to the same area at both the beginning and end of the intercensal period.
(iv) Natural increase for the intercensal periods before 1911 cannot be calculated. The natural increase figures for these periods relate to the decades beginning 1st January preceding the Census (normally taken in April).

Sources: Population Tables of each Census Report, 1851-1951.
Registrar General's Annual Statistical Reports, 1851-1951.
Registrar General's Quarterly Returns, 1931, 1939, 1951.

Further interesting divergences are to be seen since 1939. Over the years 1939 - 1948 Wales had a slight gain through immigration, which meant a remarkable recovery from her depressed condition before the war. On the other hand, Scotland in 1945 - 51 suffered a very heavy loss by migration, her highest in the century under review, namely, an average annual rate of 92 per 10,000 population.

The recent course of the external balance for Wales may be given in more detail.[3] Between mid-year 1939 and 31 March 1951, there was a net loss by migration of 9,000. If we split up this period we find that from 1939 to 1948 there was a net gain of about 3,000 and a net loss of 12,000 from 1948 to 1951. The latter was an annual rate

[3] I am grateful to the General Register Office, Somerset House, for their kindness in supplying the figures used in this paragraph.

of about 18 per 10,000 population. Since 1951 the external balance has continued at roughly the same rate; between 1951 and 1957 the net loss by migration was 27,500. In contrast to Scotland, Northern Ireland and Eire, the aggregate demand for labour in Wales since 1939 has been high enough to enable her to retain four-fifths of her natural increase.[4]

An example of a more brisk pace of development is seen in Scandinavia. After many decades of net losses, Sweden since 1931 has become more and more an immigration country with a rate of 28 per 10,000 in 1945 - 51. She has recently been going through a rapid phase of economic growth; her national product *per capita* increased in the first 50 years of this century at the average rate of 29 per cent. per decade.

Table I shows that in the period 1851 - 1911 there were long swings in emigration from England and Scotland, with peaks in 1851 - 61, 1881 - 91, and 1901 - 11; this fluctuation coincided with the long swing in international investment and in net immigration into the United States. The course of Wales's migration balance does not fit in to this pattern; in the whole period there was only one peak in emigration and that was in 1861 - 71, whereas in 1901 - 11 Wales joined the ranks of the countries of new settlement, such as the United States and Canada, and absorbed population at a remarkable rate. Ireland, both North and South, suffered a succession of enormous losses far in excess of the natural increase; the population of Ireland fell from 8,175,000 in 1841 to 4,390,000 in 1911.

British statistics have never distinguished between Welsh and English emigrants going overseas; for information on this subject we have to go to the receiving countries. Fortunately, the most important of these, the United States, published as from 1875 a series showing the number of immigrants from Wales as distinct from England. The figures for Wales, England, Scotland and Ireland for the period 1881 - 1930 are summarised in Table III; in order to compare the incidence of emigration to the United States from each country in the British Isles, we have expressed the outflow as an annual rate per 10,000 of the mean population in each decade. The source distinguishes between immigrants who reported an occupation and those who did not, the latter consisting mainly of wives and children.

The popular impression that Welsh workers flocked to the United States in the latter half of the nineteenth century is a myth. In the decade 1881 - 90 when the absorptive power of the United States was at a peak, the effect on Wales was hardly noticeable. In proportion to

[4] Between mid-year 1939 and mid-year 1957 Wales had an excess of births over deaths of 184,259 and a net loss by migration of 36,551.

population, English emigrants to America (with occupation) were four times as numerous as the Welsh, and the Scots were seven times as numerous. The sharpest contrast is with Ireland where the rate was 77 per 10,000 as against 3 per 10,000 in Wales. The internal demand for labour in Wales in the eighties must have been relatively stronger than in the rest of the British Isles. In the nineties there was a sharp fall in the rate of emigration to America from England and Scotland (from 25 per 10,000 to 8 per 10,000 and from 39 per 10,000 to 14 per 10,000 respectively), but the rate from Wales showed barely any change. Welsh emigration to America was not only very small but also remarkably steady throughout the period 1881 - 1930. Skilled workers were in the majority, and the proportion of farmers was very low. In quality, but not in quantity, the Welsh emigrants were similar to those who left Scotland to settle in America.

The figures in Table III are gross, not net; they do not take into account any return movement there may have been from the United States. These emigration rates are thus not comparable with the *net* rates given in Table I. We can, however, infer the part played by emigration to America in the total net loss for certain countries. For example, in the depressed 1920s the total net outflow from Scotland was at an annual rate of 80 per 10,000, and the gross movement to America was at an annual rate of 60 per 10,000. It is reasonable to conclude that the majority of the Scottish emigrants in that decade went to America rather than to England. On the other hand, the aggregate net outflow from Wales was no less than 102 per 10,000, while the gross rate of outflow to the United States was only 6 per 10,000. The workers driven from Wales by the depression went mainly to England.

Population trends in various parts of the British Isles may be put in a nutshell as follows. In the period 1871 - 1951 the proportion of the natural increase lost through migration was 3 per cent. in England, 29 per cent. in Wales, 47 per cent. in Scotland, 97 per cent. in Northern Ireland and 171 per cent. in Eire.

II. Wales's Internal Migration Balance Since 1851

The evolution of the Welsh economy in the century 1851 - 1951 falls into three phases—rapid growth in the period 1851 - 1911, a severe setback between the wars, and further expansion since 1939. We shall now examine the changing pattern of internal migration in each of these phases.

TABLE III

NUMBER OF IMMIGRANTS (WITH AND WITHOUT OCCUPATION) TO THE UNITED STATES FROM WALES, ENGLAND, SCOTLAND AND IRELAND, 1881-1930

Period and country of origin	Mean population of country of origin (thousands)	Immigrants to U.S.A. (with occupation)	Annual rate per 10,000 mean population	Total immigrants to U.S.A. (with and without occupation)	Annual rate per 10,000 mean population
Wales					
1881-90	1,677	5,682	3	12,640	8
1891-1900	1,895	5,005	3	11,219	6
1901-10	2,238	11,708	5	18,631	8
1911-20	2,538	9,988	4	15,379	6
1921-30	2,629	8,402	3	16,267	6
England					
1881-90	25,812	319,118	12	644,680	25
1891-1900	28,861	128,107	4	224,350	8
1901-10	32,061	237,227	7	387,005	12
1911-20	34,440	271,181	8	419,526	12
1921-30	36,290	258,523	7	472,873	13
Scotland					
1881-90	3,881	79,342	20	149,869	39
1891-1900	4,249	28,006	7	60,046	14
1901-10	4,617	86,976	19	133,333	29
1911-20	4,822	100,824	21	164,131	34
1921-30	4,862	177,476	36	293,764	60
Ireland					
1881-90	4,940	382,368	77	655,482	133
1891-1900	4,582	280,054	61	404,045	88
1901-10	4,429	316,340	71	371,772	84
1911-20	4,372	187,902	43	240,041	55
1921-30	4,269	278,794	65	362,921	84

Source: Original data taken from returns issued by the United States Bureau of Statistics of the Treasury Department and the *Annual Report of the Commissioner General of Immigration.*

The data for the period 1851 - 1911 are set out in Tables IV and V. The groundwork for this analysis was provided by the researches of T. A. Welton and the additions made by Professor A. K. Cairncross.[5] Welton grouped the registration districts of England and Wales into three classes, Towns, Colliery Districts and Rural Residues, and he calculated net gains and losses by migration in each decade. Professor Cairncross uses the same groupings in his extension of the investigation to cover the period 1841 - 1911. It has been possible to disentangle

[5] T. A. Welton, *England's Recent Progress* (London, Chapman and Hall, 1911), and his 'Note on Urban and Rural Variations according to the English Census of 1911,' *Journal of the Royal Statistical Society*, Vol. LXXVI, 1913. A. K. Cairncross, 'Internal Migration in Victorian England,' *The Manchester School*, Vol. XVII, No. 1, Jan. 1949, pp. 67 - 87.

the Welsh areas so as to present in Table V the internal balance of gains and losses by migration.

A bird's eye view of internal migration in England and Wales is given in Table IV. In the fifties and sixties nearly one and a half million people were released by the rural areas; the expanding towns and coalfields absorbed about two thirds of them and net emigration

TABLE IV

INTERNAL MIGRATION IN ENGLAND AND WALES, DECENNIALLY, 1851-1911

Area	Net loss (−) or gain (+) by migration (Thousands)					
	1851-61	1861-71	1871-81	1881-91	1891-1901	1901-11
Rural residues .	−742·6	−683·0	−837·5	−845·4	−660·4	−294·6
Towns . . .	+516·8	+532·6	+604·7	+137·8	+520·8	−321·1
Colliery districts .	+103·5	+ 90·9	+ 84·5	+ 90·3	+ 85·2	+114·0
England and Wales[a] . .	−327·0	−206·0	−164·0	−601·0	− 69·0	−501·0

[a] The migration balance for England and Wales is based on N. H. Carrier and J. R. Jeffrey, *op. cit.*, p. 14. The figures for 1851-61 and 1861-71 allow for under-registration of births, as estimated by Dr. Farr, 1871 Census of England and Wales, Vol. IV, p. 55. See also D. V. Glass, 'A Note on the Under-registration of Births in the Nineteenth Century', *Population Studies*, Vol. V, No. 1, July, 1951. This allowance for under-registration of births is the explanation of the big discrepancy between the net losses by migration from England and Wales in 1851-61 and 1861-71 given above and the net losses which would be obtained by taking the algebraic sum of the figures in the first two columns of the table which are based on *recorded* births.

Source: T. A. Welton, *op. cit.*, and A. K. Cairncross, *op. cit.*, pp. 82-86.

accounted for about one third. From the seventies to the 1900s there was a clear inverse relation between internal and external migration. The very high net outflow of 837,000 from the countryside in 1871 - 81 was matched by a powerful absorptive capacity in the urban areas, with net emigration relatively low (164,000). The reverse took place in 1881 - 91; corresponding to the heavy rural exodus of 845,000 there was a net inflow of only 228,000 into the towns and coalfields, whereas net emigration amounted to 601,000. In the nineties there was a swing of the pendulum in favour of domestic industrial expansion which absorbed nearly all the labour released by the rural districts. In the decade 1901 - 11 even the towns taken as a whole had a net loss by migration of 321,000, and net emigration soared again to 501,000.

Turning to the picture for Wales in Table V, we are immediately struck by the fact that the industrial sector (the Glamorgan-Monmouth

area) expanded most in those very decades when the industrial sector of England and Wales as a whole expanded least, i.e., in 1851 - 61,

TABLE V

INTERNAL MIGRATION IN WALES, DECENNIALLY, 1851-1911

	Net loss (−) or gain (+) by migration (Thousands)					
	1851-61	1861-71	1871-81	1881-91	1891-1901	1901-11
Welsh rural areas	− 63·3	− 59·0	− 64·6	−106·1	− 57·4	− 37·9
Glamorgan-Monmouth colliery area	+ 39·6	+ 11·0	+ 12·2	+ 87·2	+ 40·3	+129·3
Wrexham colliery area	+ 2·7	− 2·0	− 1·9	− 1·1	− 0·6	− 2·9
Llandudno and Rhyl areas	+ 1·3	− 2·3	+ 2·3	+ 2·2	+ 8·3	+ 5·7
Wales[a]	− 36·3	− 63·0	− 52·1	−17·8	− 9·4	+ 98·5

[a] The migration balance for Wales is based on Table II. The estimated migration balance for 1851-61 and 1861-71 has been arrived at after making allowance for under-registration of births in those decades. The recorded number of births was 4 per cent. too low in 1851-61 and 2 per cent. too low in 1861-71, according to D. V. Glass's estimates for England and Wales in *Population Studies*, Vol. V, No. 1, July, 1951. The figures of net gains or losses by migration in the body of the above table, derived from the work of Welton and Cairncross, are based on the number of *recorded* births. Hence the discrepancy in the first two columns of the table. See Note to Table 4.

Source: T. A. Welton, *op. cit.*, and A. K. Cairncross, *loc. cit.*

1881 - 91 and 1901 - 11. The progress of the South Wales coalfield in the sixties and seventies was comparatively slow, and during that period only a small part of the rural exodus could be absorbed in Wales. Net emigration, mainly to England, took away about 115,000 people. In the eighties the net outflow from the Welsh countryside reached a peak of 106,000, but most of it was absorbed by the vigorously expanding South Wales coalfield. Thus, in this decade when emigration from England was very heavy, emigration from Wales was negligible. During the nineties when England was having a home investment boom, the net absorptive capacity of industry in South Wales was less than half of what it had been in the previous decade. However, the spectacular growth of new towns, such as Llandudno and Rhyl, and the striking fall in size of the rural surplus enabled Wales to retain almost the whole of its natural increase. At no time was the contrast more evident than in the decade 1901 - 11 when a net Welsh rural exodus of 38,000 was matched by a net absorption of 129,000 in the Glamorgan-Monmouth coalfield; Wales had become an immigration country.

How did the rate of development of the Welsh coalfields compare with that of the English coalfields? Some light on this is thrown by Table VI which gives the shape of the fluctuations in the growth of the mining labour force in the two countries, and the figures are illustrated in Fig. II. There is a marked inverse relation between the rate

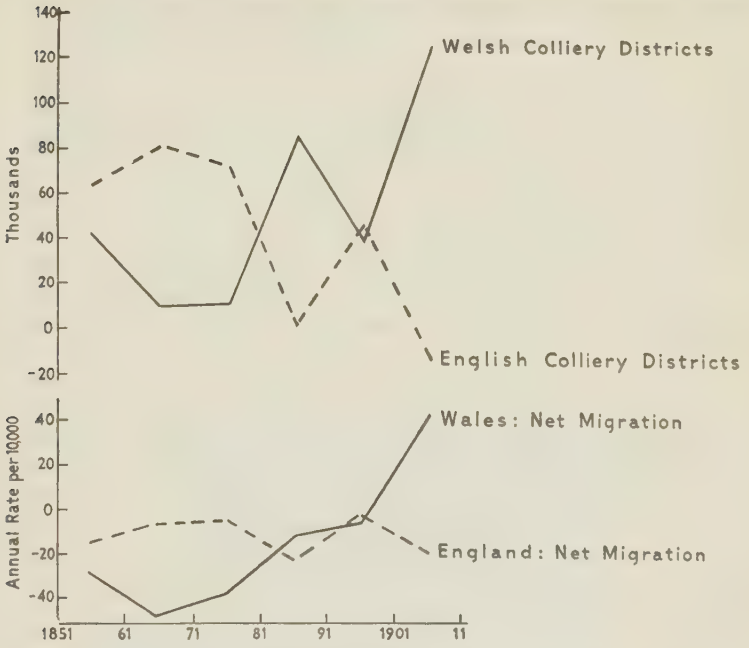

FIG. II. Welsh and Eng'ish colliery districts: Net migration movements, 1851-1911. *Source*: Table V, p. 178.

of growth of the Welsh and the English colliery districts. In the sixties and seventies the main expansion in coal mining was in England; in the eighties Wales almost monopolised the advance, whereas England took the lead in the nineties. The decade 1901 - 11 saw a vast development in Wales and an actual loss by migration in the English coalfields taken as a whole. Fig. II also shows the parallel inverse relation between the course of external migration in Wales and in England. In the sixties the main coalfield expansion was in Durham; in the seventies it was in Durham, Wigan, Chesterfield and Barnsley; and in the nineties it was in Durham, Chesterfield, Nuneaton and Barnsley. Welsh coal was chiefly for export, and the opening up of the Welsh colliery districts fluctuated with the wider export sector of the United Kingdom; on the other hand, the output of English coals consumed on the home market was sensitive to the long swing in the rate of home

capital construction. Since the industrial sector of Wales consisted almost entirely of the coalfields, it is not surprising that the rate of growth (as measured by net migration) in Wales was inverse to that of England.

The drastic change in the balance of internal migration in the twenty years after the First World War is brought out in Table VII.

In the depression of the inter-war period the net outflow from the countryside continued on about the same scale as before the First World War, but it was now accompanied by an immense efflux of 421,000 people from the hard-hit industrial areas. The only bright spot in these gloomy years was the net inflow into the non-industrial towns, mostly in North Wales, such as Bangor, Caernarvon, Colwyn Bay, Llandudno, Rhyl, Conway, Prestatyn and Abergele. Between 1921 and 1939 Wales lost on balance 450,000 people through emigration; the natural increase in this period was 259,000, and so there was an absolute fall of 191,000 in the population.

III. Long Swings in Investment

So far we have used population data to trace the shape of Welsh economic development since the middle of the nineteenth century, and

Table VI

COLLIERY DISTRICTS AND MIGRATION BALANCES

Decade	Welsh colliery Districts	English colliery Districts	Wales	England
	Net gain (+) or loss (−) by migration (thousands)	Net gain (+) or loss (−) by migration (thousands)	Net migration (annual rate per 10,000 population)	Net migration (annual rate per 10,000 population)
1851-61	+ 42	+ 63	− 28	− 16
1861-71	+ 9	+ 82	− 47	− 7
1871-81	+ 10	+ 74	− 35	− 5
1881-91	+ 86	+ 4	− 11	− 23
1891-1901	+ 40	+ 45	− 5	− 2
1901-11	+126	− 12	+ 45	− 19

Source: Cols. 1 and 2: Cairncross, *op. cit.*, p. 86; cols. 3 and 4: Table I above.

some interesting differences between Wales and other parts of the British Isles have emerged. We shall now examine the growth and fluctuations of industry and agriculture. Since there are no indices of income and investment in Wales, we must make the best of the few time-series available for the period under review. The object is to relate the long swings in industrial growth in Wales to the pattern of

development in the rest of the United Kingdom and the Atlantic economy. We shall take the volume of coal exports from South Wales ports (from 1850) and the output of crude steel in South Wales (from 1879) as indices of the growth of the industrial sector. The average price of steam coal, f.o.b. Cardiff (from 1850), can be regarded as indicating fluctuations in income, and the course of agriculture will be reflected in the index of total livestock (from 1867).

TABLE VII
INTERNAL MIGRATION IN WALES, 1921-1939

Area	Net loss (−) or gain (+) by migration	
	1921-31	1931-39
Rural areas . . .	− 30,337	− 23,592
Non-industrial towns .	+ 6,896	+ 16,524
Industrial areas . .	−246,463	−174,092
Wales[a]	−269,904	−181,160

[a] The discrepancies between these figures for 1921-31 and 1931-39 and those in Table II are explained by the fact that in Table II the decennial excess of births over deaths had to be estimated for calendar years.

Source: *Annual Reports of the Registrar General, Civil Tables.*

The long swings in the Atlantic economy are shown in Fig. III. British foreign investment and merchandise exports fluctuated in unison with railway building and bituminous coal output in the United States. On the upward course of the long swing, when investment in capital equipment in the United States was booming, the export sector in the United Kingdom expanded rapidly. Fig. III shows that the industrial investment sector of Wales (as revealed in the course of coal exports and steel output) fluctuated in harmony with the British export sector.[6] We can now see the phenomenon of the eighties in Wales in its true perspective. There was an upsurge in British foreign investment and exports, related to the construction boom overseas and particularly in the United States; the Welsh economy participated fully in this upswing. It would not be too much to say that the whole of the

[6] The dip in the South Wales coal export series in the early seventies when the British export series were going up is easily explained. There were serious industrial stoppages in 1871, 1873 and 1875. In the prolonged struggle of 1875 the pits were idle for five months. Hence the sharp trough in the series. A similar one is to be found in 1898.

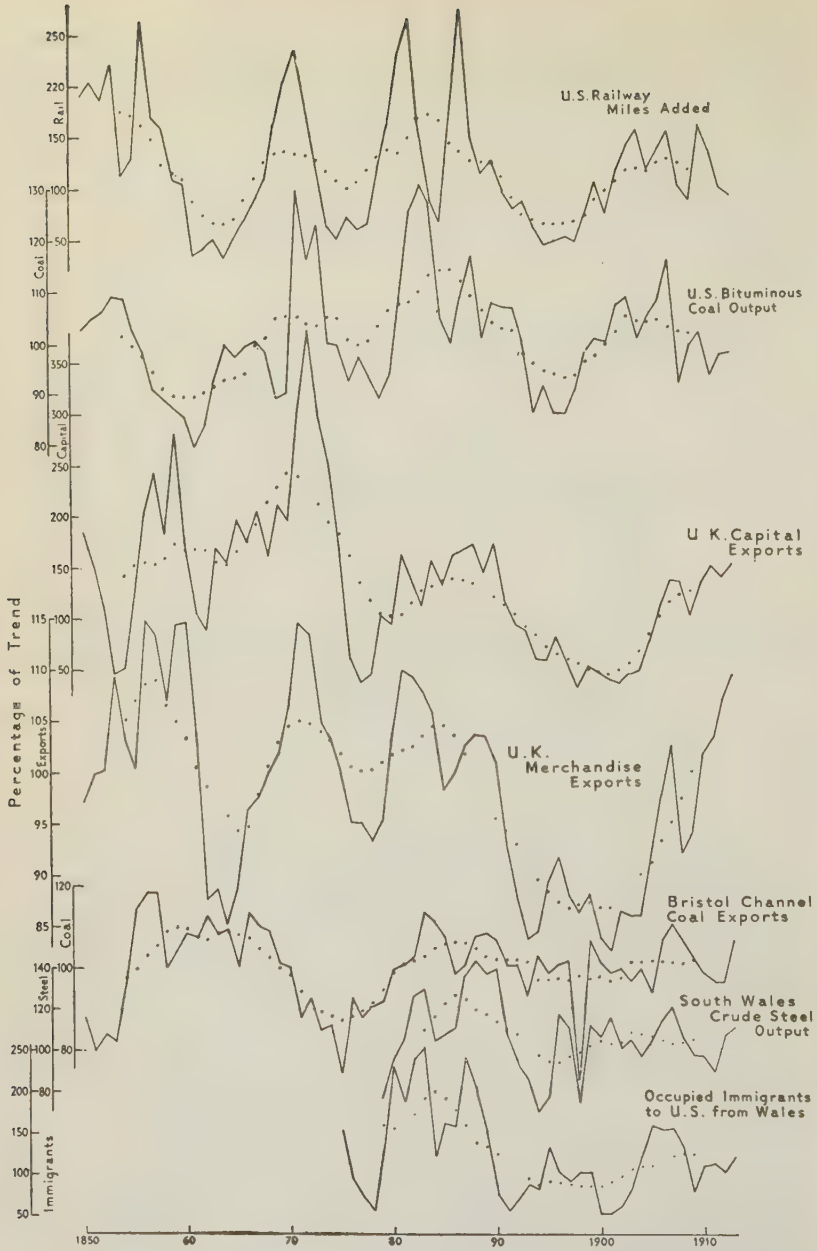

FIG. III. Indices of long swings in Wales and the Atlantic Economy, 1850-1913. *Sources*: Brinley Thomas, *Migration and Economic Growth* (Cambridge University Press, 1954), Tables 84, 97, 98, 101 and 102; 'The South Wales Steel Industry', *Bulletin of the British Iron and Steel Federation*, December 1955; Finlay Gibson, *The Coalmining Industries of the United Kingdom* (Cardiff, 1921), p. 84; D. A. Thomas, 'The Growth and Direction of our Foreign Trade in Coal during the last Half Century', *Journal of the Royal Statistical Society*, September 1903, p. 71.

industrial zone of Wales (the coalfields of Glamorgan and Monmouth) was a part of the British export sector. Fig. III shows too that the long swings in Welsh emigration to the United States were parallel to the long swings in the international economy; paradoxically, this meant—in the long-period and distinct from the short—that emigration went

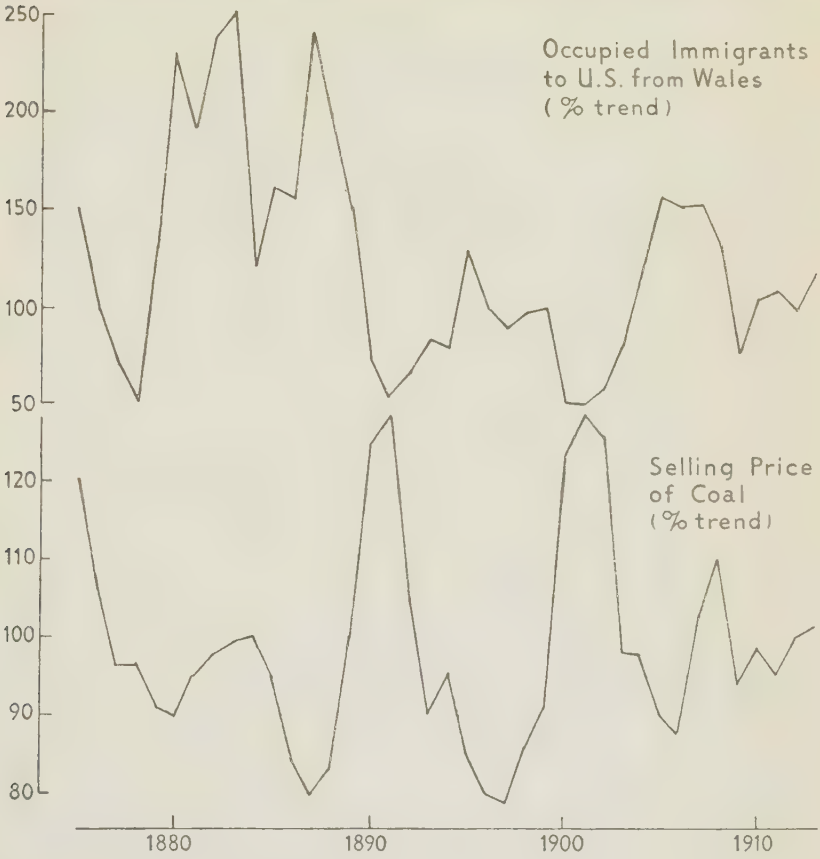

FIG. IV. Wales: Emigration and the price of coal, 1875-1913.
Sources: Brinley Thomas, *op. cit.*, Table 84; Finlay Gibson, *op. cit.*, p. 174.

up and down with prosperity in Wales. We have already seen that over the entire period the volume of emigration from Wales was negligible; and now we can see that this trickle of emigration varied with the ups and downs in the long cycle in foreign investment and exports. These emigrants were not forced out by the impoverishment of the economy as happened in Ireland and Scotland; it was a complementary export of labour on a very minor scale induced by the export-biased nature of the Welsh economy. In the short cycle, however, emigration,

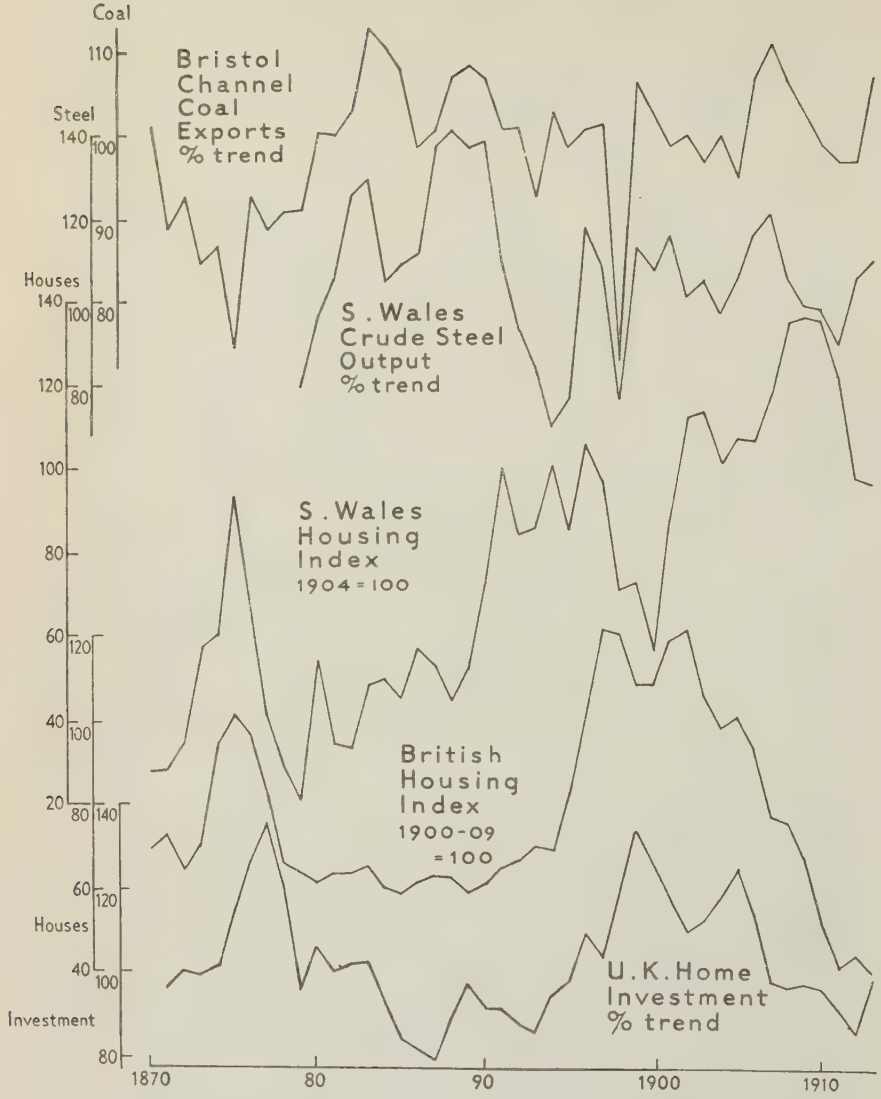

FIG. V. Welsh and British Investment Indices, 1870-1913.

Sources: Finlay Gibson, *op cit.*, p. 84; D. A. Thomas, *loc. cit.*; *Bulletin of British Iron and Steel Federation*, December 1955; J. Hamish Richards and J. Parry Lewis, 'House Building in the South Wales Coalfield, 1851-1913', *The Manchester School*, XXIV, September 1956, Table II; B. Weber, 'A New Index of Residential Construction, 1835-1950', *Scottish Journal of Political Economy*, II, June 1955, pp. 104-132; Brinley Thomas, *op. cit.*, Table 100.

as one would expect, was inverse to fluctuations in income in Wales, as shown in Fig. IV. Sharp and frequent changes occurred in the price of coal; when the price rose there was prosperity and the incentive to emigrate weakened, and vice versa when the price fell. These short cyclical ups and downs are to be distinguished from the long swing.

Fig. V brings new evidence to bear on the thesis developed earlier in this paper. As already explained, the coal industry in South Wales was seriously disturbed by stoppages during the seventies; it is therefore better to concentrate on the period 1880 - 1913. Here we find the movements of Welsh coal exports, steel output and building[7] inverse to those of home investment and building in the United Kingdom. In the eighties the Welsh coal and steel indices rose sharply and building reached a high peak in 1891; meanwhile house-building and home investment in the United Kingdom were declining in relation to trend. In the nineties relative stagnation in the Welsh industrial sector coincided with a marked boom in home investment and housing in Britain as a whole. After the turn of the century a vigorous expansion in housing and in the coal and steel industries of South Wales was accompanied by a downswing in British home investment and housing.

When the Welsh economy was going ahead briskly, the English export sector was simultaneously expanding while home capital construction was in relative decline. Our population analysis indicated that during such phases Welsh economic growth was strong enough to retain nearly the whole of the country's natural increase or even to attract a net inflow of labour from outside, whereas in England the weakness of the home construction sector caused a large part of the rural surplus to emigrate overseas. Thus low emigration from (or immigration into) Wales coincided with high emigration from England. On the other hand, when the Welsh economy was stagnating, the English home construction sector was simultaneously expanding and the export sector declining relatively. In this phase the workers displaced from the land in Wales, facing a weak demand for labour in their own country, migrated over the border to England where there was a brisk demand for labour in the prosperous home construction sector. Thus, high emigration from Wales coincided with low emigration from England. The agricultural surplus in Wales was recruited either for the export-geared Welsh industrial sector or for the English home construction sector; there was comparatively little recruitment for overseas. The time-series in Fig. V confirm the conclusion reached earlier in this paper.

[7] For an analysis of the Welsh building cycle see J. Hamish Richards and J. Parry Lewis, 'House Building in the South Wales Coalfield, 1851 - 1911,' *The Manchester School*, September 1956, pp. 289 - 301.

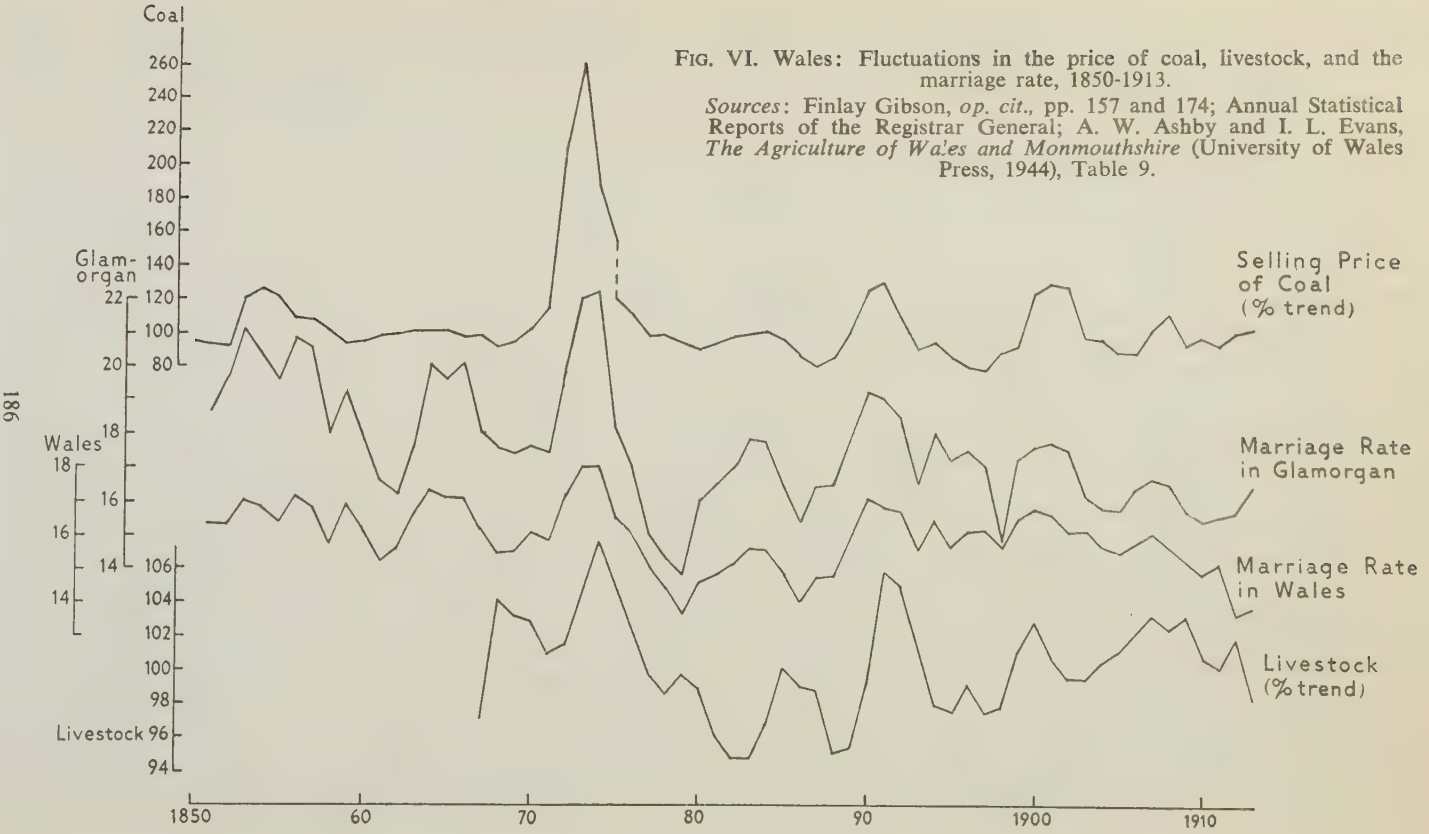

FIG. VI. Wales: Fluctuations in the price of coal, livestock, and the marriage rate, 1850-1913.

Sources: Finlay Gibson, *op. cit.*, pp. 157 and 174; Annual Statistical Reports of the Registrar General; A. W. Ashby and I. L. Evans, *The Agriculture of Wales and Monmouthshire* (University of Wales Press, 1944), Table 9.

The lack of statistics of income makes it difficult to trace internal reactions of industrial fluctuations in Wales, but an attempt has been made in Fig. VI to approach the problem indirectly. The selling price of coal is a good guide to variations in income during the period. It is interesting to note that the marriage rate per 1000 population in Glamorgan and in Wales as a whole showed a marked correlation with the price of coal. The year 1873 saw the highest peak in coal prices, and in the following year the marriage rate in Glamorgan reached a maximum of 22·2 per 1000 and the birth rate 44·3 per 1000. There was also close agreement between fluctuations in total livestock (in stock units) and the movements in coal prices, the former lagging slightly after the latter. Changes in income were accompanied by variations in the marriage rate and changes in investment in agriculture. The ups and downs in purchasing power in the coalfield had a direct effect on the agricultural sector.

The year 1891 may be regarded as a watershed in the fortunes of the Welsh rural economy; it marked the culmination of a rapid growth in livestock, with two prominent cyclical peaks in 1874 and 1891. Between the early seventies and the beginning of the nineties there was an increase of 25 per cent. in the total of livestock (in stock units) on Welsh farms and of 33 per cent. in the acreage in permanent grass. Meanwhile the number of men engaged in farming fell from 129,200 in 1851 to 86,300 in 1901, as shown in Table VIII.

TABLE VIII

MALES ENGAGED IN FARMING IN WALES, 1851-1911
(Thousands)

Year	Farmers	Relatives	Labourers	Bailiffs	Total
1851	35·3	20·0	73·3	0·6	129·2
1871	35·2	14·3	53·0	1·1	103·6
1891	32·3	12·5	44·9	1·2	90·9
1901	32·0	15·1	37·8	1·4	86·3
1911	32·1	15·9	39·5	1·6	89·1

Source: Census returns. See A. W. Ashby and I. L. Evans, *The Agriculture of Wales and Monmouthshire* (University of Wales Press, 1944), pp. 74 - 75.

After the mid-nineties a recovery in world prices helped the farmers and in the decade 1901 - 11 when, as we have seen, Wales was absorbing population from outside her borders, there was actually an increase in the number engaged in agriculture—males from 86,300 to 89,100, and females from 12,300 to 20,100. However, this was a passing

phase; after the First World War difficulties multiplied and by the eve of the Second World War the area under cultivation was down to what it was seventy years before.[8]

The economic upswing in Wales since 1945 is in striking contrast to the expansion in 1900 - 14. Early in the century the rate of growth was based on intensive specialisation in the coal export trade involving a huge increase in the demand for manpower which could be satisfied only by drawing in large numbers of migrants. Since the war there has been a marked tendency towards diversity and a dependence on the home market; new labour has been recruited from the hitherto untapped supply of female workers, and the average annual net loss of population through migration has been as low as 17 per 10,000 as against 70 per 10,000 in Scotland and 67 per 10,000 in Northern Ireland.

Manufacturing in Wales now accounts for 23 per cent. of total employment as compared with only 11 per cent. before the war; in the ten years, 1948 - 58, this sector grew twice as fast as it did in Great Britain, the outstanding rates of expansion being miscellaneous manufacturing (91 per cent.), precision instruments (60 per cent.), engineering (50 per cent.), paper and printing (46 per cent.), and nylon (33 per cent.). Women now comprise 28 per cent. of the labour force as compared with 14 per cent. in 1939. Contrary to popular belief, the spectacular increase in the scale of manufacturing is not based on a substitution in favour of female labour. The number of females per 100 males engaged in general manufacturing barely changed at all between 1948 and 1958; indeed, in some of the more buoyant trades, such as nylon and rayon, miscellaneous manufacturing, engineering and chemicals, there was a substitution in favour of men. It was in the professional and distributive services that the big relative increase in female employment took place.

There has been a technical revolution in the steel industry; South Wales now produces half the British output of steel sheets. Three quarters of South Wales steel deliveries are distributed within Great Britain, particularly in the hollow-ware, motor car and aircraft industries. Coal mining, which accounted for one quarter of the working population of Wales in 1938, now employs only one eighth of the total; and the part of the output exported is negligible. The Welsh economy has ceased to be just a corner of the British export sector: it now has a much more diversified structure.

[8] For a detailed analysis see Ashby and Evans, *op. cit.*

IV. Industrialisation and the Welsh Language

It is a commonplace of the nationalist creed that the economic growth of Wales in the last century was seriously inimical to the nation's language and culture. Industrialism, while it brought ample material gain, is seen as a powerful Anglicising force which swept over most of the country, leaving the rural counties of the North and West as the last fastnesses of the Welsh-speaking tradition. The countryside is the backbone of all that is enduring in the national culture and the flight from the land has been a paralysing disease; this has become an article of faith for poets and politicians, preachers and pedagogues alike. The Council for Wales and Monmouthshire made a special study of the depopulation of Welsh rural areas over the last 100 years, and drew a gloomy picture of 'the seriousness of the problem'.[9] High academic authority can be cited and the thesis is now part of the conventional wisdom of the standard textbooks. Professor David Williams puts it in the following words. 'In the course of the nineteenth century the industrialisation of Wales added a further division in so far as it brought in a large non-Welsh population which has never been assimilated. Besides, industrialism linked Wales with England as never before in its history. While Wales was isolated geographically, and was almost self-sufficing economically, the influence of England was not strong. But the building of roads and railways, and the enormous growth of Welsh industry as part of the economic development of Britain, profoundly affected Welsh life; so much so that there is a marked tendency to regard Welsh culture as being in essence the culture of rural Wales and not of the industrial areas.'[10]

One often gets a clearer view of a country's history by looking at it from the outside. That is what this paper has tried to do—to see Wales in perspective against the wider world of which it was a tiny part. Is it really true that industrialisation and the accompanying rural exodus undermined the language and culture of Wales in the period 1850 - 1913? The telling fact, which historians have not noticed, is that *the Welsh language was saved by the redistribution of a growing population brought about by industrialism.* By implication this has already been demonstrated in earlier sections. We can now make it explicit. In the sixty years, 1851 - 1911, there was a net loss of 388,000 people by migration out of Welsh rural areas; in the same period the Glamorgan-Monmouth colliery districts and the North Wales towns absorbed on balance 336,000 by inward migration. It is true that a

[9] Cmd. 8060, p. 20.
[10] David Williams, *A History of Modern Wales* (John Murray, 1950), p. 269.

good proportion of the latter were non-Welsh. A detailed analysis of the census figures for Glamorgan enables us to estimate that 160,000[11] of the migrants to that county between 1861 and 1911 came from Welsh counties.[12] To these one would need to add the number of

TABLE IX

WALES: NUMBER OF WELSH-SPEAKING PERSONS AGED 3 AND OVER, 1901, 1911 AND 1951

County	Number of Welsh-speaking persons aged 3 and over			Proportion speaking Welsh per 1,000 population aged 3 and over		
	1901	1911	1951	1901	1911	1951
Mainly rural						
Anglesey	43,554	42,666	38,443	917	887	798
Brecon	23,119	22,896	16,339	459	415	303
Caernarvon	105,301	101,247	85,115	896	856	717
Cardigan	53,638	51,077	40,642	930	896	795
Denbigh	75,604	76,861	62,502	619	567	385
Flint	37,290	36,533	29,121	491	422	211
Merioneth	42,755	38,976	29,966	937	903	754
Montgomery	24,341	22,406	15,340	475	448	351
Pembroke	28,333	27,390	23,227	344	324	269
Radnor	1,360	1,139	857	62	54	45
	435,295	421,191	341,552	648	602	448
Mainly industrial						
Glamorgan	344,892	393,692	231,722	435	381	203
Carmarthen	113,947	127,236	127,295	904	849	773
Monmouth	35,690	35,247	14,117	130	96	35
	494,529	556,175	373,134	415	359	218
Totals	929,824	977,366	714,686	499	435	289

Source: Census of England and Wales:
1901, *Summary Tables* (cd. 1,523), Table LII;
1911, *County Reports*, Table 33;
1951, *Report on Welsh Speaking Population*, Table D, p. xiv.

children and grandchildren they had after settling down in Glamorgan.[13] If a similar analysis had been made of the inflow into the rest of the South Wales coalfield in Carmarthenshire and Monmouthshire, we could arrive at a rough estimate of the total number of people received into the industrial areas from the rest of Wales which was largely rural. We do know, however, that in 1911 there were in the

[11] To allow for the Anglicised parts of Monmouthshire, only half of the migrants from the county have been included.

[12] Brinley Thomas, 'The Migration of Labour into the Glamorganshire Coalfields, 1861-1911,' *Economica*, November 1930, pp. 292-94.

[13] The addition to the population of Glamorgan through the excess of births over deaths increased from 61,000 in 1861-70 to 169,000 in 1901-10.

three counties of Glamorgan, Monmouthshire and Carmarthenshire (containing the coalfield) 556,000 people who could speak Welsh and these comprised 57 per cent. of the total number of Welsh speakers in Wales at that time. The vast majority of these people would not have been there but for the pull of industrialism. The census figures are given in detail in Table IX.

If Wales had been an agricultural country like Ireland, the whole of her surplus rural population which was Welsh to the core (nearly 400,000 in the sixty years up to 1911) would have had to go to England or overseas; these people, together with their descendants, would have been lost to the land of their birth for ever. This would have been a major disaster to the Welsh language; the number speaking it would probably have been well below half the figure recorded in 1911. The reason why this did not happen was the vigorous growth of the South Wales coalfield.[14] Industrial development was on such a scale that Wales was able to retain a large proportion of the indigenous stock which was displaced from the countryside. The young men and women who left the farms and flocked into the mining townships carried the Welsh way of life with them and brought up their children to speak the mother tongue. Indeed these closely-packed and isolated communities acted as melting pots; they were so intensely Welsh that many of the English immigrants—not to mention the Italian shopkeepers—were quickly assimilated and picked up the language. It is worth noting that even in 1951 54 per cent. of the 715,000 who were Welsh-speaking were in the South Wales industrial area.

The romanticist will no doubt reply that the heritage would have been much safer in the hands of a small homogeneous nation of culture-loving peasants. But what would have been its fate in the great agricultural depression of the eighties? Given a miracle Wales, like Denmark, might have found her Grundtvig; but it is much more likely, when we think of the physical disabilities of Welsh agriculture, that she would have been caught, like Ireland, in the vicious circle of mass emigration. We saw that the fortunes of the Welsh farmer largely depended on the purchasing power in the coalfields. Thanks to the abnormally high rate of industrial growth and particularly its time-shape in relation to that of England, the rate of emigration from Wales to the United States was negligible as compared with the flow from other parts of the United Kingdom. Moreover, without the wealth and

[14] Professor David Williams (*op. cit.*, pp. 290 - 91) says that the absolute number of those who could speak Welsh went on increasing ' . . . . because of the natural increase of the population.' This is a misconception. The reason was not the natural increase (which by itself would have been a menace) but the fact that industrialism enabled so much of the natural increase to remain in Wales.

productivity of the industrial sector, is it conceivable that resources could have been found for that trinity of modern institutions expressing the national consciousness—the University, the Library and the Museum?

Instead of bemoaning the rural exodus, the Welsh patriot should sing the praises of industrial development. In that tremendous half-century before the First World War, economic growth in Wales was so vigorous that her net loss of people by emigration was a mere 4 per cent. of her bountiful natural increase over the period. Few countries in Europe came anywhere near to that. The unrighteous Mammon in opening up the coalfields at such a pace unwittingly gave the Welsh language a new lease of life and Welsh Nonconformity a glorious high noon.

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EMPLOYMENT AND UNEMPLOYMENT IN REGIONS AND IN THE DEVELOPMENT AREAS

DURING recent years, each of the eleven administrative regions of Great Britain has diverged somewhat widely from the national pattern of employment and unemployment. The eight Development Areas, regarded as a whole, have also diverged from that pattern. What are the reasons? This article tries to suggest some.

I

To start with employment, Table I shows the changes in insured numbers in the eleven regions during the period 1949 - 57.

TABLE I

REGIONAL CHANGES IN NUMBERS OF INSURED PERSONS, 1949 - 57[a] (000's omitted)

	1949	1957	Increase	Percentage increase
Great Britain . .	20,321	21,850	1,529	7·5
Eastern . . .	1,044	1,232	188	18·0
Southern . . .	919	1,080	161	17·5
Midland . . .	1,949	2,138	189	9·7
North Midland . .	1,379	1,501	122	8·8
South Western . .	1,049	1,132	83	7·9
London and South Eastern . . .	5,109	5,494	385	7·5
East and West Ridings	1,769	1,869	100	5·7
Northern . . .	1,219	1,286	67	5·5
Wales	911	956	45	4·9
North Western . .	2,886	2,997	111	3·8
Scotland . . .	2,087	2,165	78	3·7

[a] Figures for May. In 1957, Dorset was taken away from Southern region and added to South Western region. The figure for each of these regions for 1957 has been based on the growth shown in the previous year. I am indebted to Dr. F. R. Oliver for assistance in preparing the statistical tables.

Eastern and Southern regions expanded their insured numbers much more rapidly than the country as a whole; the two Midland regions lagged behind these but exceeded the national rate of growth; South Western and London and South Eastern regions approximated

to this; East and West Ridings, Northern and Wales regions fell below it; North Western and Scotland achieved only a half of the country's rate of increase.

A possible explanation why the different regions expanded their insured numbers more or less quickly than the country as a whole is

TABLE II

CHANGES IN INSURED NUMBERS BY INDUSTRY GROUP IN GREAT BRITAIN, 1949-57
(000s omitted)

Increase			*Decrease*		
	Numbers	Per cent.		Numbers	Per cent.
Professional services	420	31·8	Clothing	1	·1
Vehicles	237	24·7	Mining and quarrying	11	1·3
Engineering, shipbuilding, electrical	343	19·1	Wood and cork	4	1·3
Distributive trades	399	19·1	Textiles	27	2·8
Paper and printing	92	19·0	Transport	54	3·1
Other manufacturing	46	18·8	Public administration	98	6·9
Chemicals	80	17·5	Miscellaneous services	133	7·7
Food, drink, tobacco	117	15·1	Leather	8	10·4
Gas, electricity, water	47	14·0	Agriculture	144	17·5
Insurance, banking and finance	57	13·0			
Precision instruments	15	11·3			
Metal manufacture	45	8·3			
Building and contracting	89	6·7			
Treatment of non-metalliferous mining products	19	5·8			
Other metal goods	21	4·2			

that their industrial structures were not alike. For example, if in a region's industrial structure in 1949 industries were strongly represented that increased their insured numbers rapidly during 1949 - 57, that region's total insured numbers might be expected to grow substantially, and vice versa. This explanation may be tested. Table II shows in which industry groups insured numbers expanded or contracted during the period in the country as a whole.

Table III shows what percentage of each region's insured population in 1949 was attached to industry groups that subsequently expanded or contracted. The regional order of Table I is stated in brackets.

TABLE III

PERCENTAGES OF INSURED PERSONS IN 1949 IN INDUSTRY GROUPS THAT EXPANDED OR CONTRACTED, 1949-57

Region	Expanded	Contracted
Midland	71	29 (3)
London and South Eastern	61	39 (6)
Eastern	57	43 (1)
Southern	55	45 (2)
South Western	55	45 (5)
Scotland	54	46 (11)
Northern	53	47 (8)
North Western	53	47 (10)
East and West Ridings	52	48 (7)
Wales	51	49 (9)
North Midland	47	53 (4)

TABLE IV

PERCENTAGE INCREASES IN INSURED NUMBERS BY REGION, 1949-57

Region	Actual increase	Increase if each industry group had expanded or contracted at national rates	Difference
Eastern	18·0	5·3	+12·7
Southern	17·5	7·7	+ 9·8
Midland	9·7	9·2	+ 0·5
North Midland	8·8	5·8	+ 3·0
South Western	7·9	7·7	+ 0·2
London and South Eastern	7·5	8·9	−1·4
East and West Ridings	5·7	6·4	−0·7
Northern	5·5	5·2	+ 0·3
Wales	4·9	6·8	−1·9
North Western	3·8	7·9	−4·1
Scotland	3·7	6·7	−3·0

Midland and North Midland regions apart, the proportions of insured numbers in industries that expanded or contracted did not differ conspicuously. But, as Table I shows, the rates at which separate regions increased their insured numbers were substantially different.

Moreover, the regional order of the percentages for expanded and contracted industries does not agree with the regional order of the percentage increases of regional insured populations. Thus, North Midlands percentage figure in Table III is the lowest, but that in Table I is the fourth largest, while Scotland takes sixth place in Table III, but the lowest place in Table I. These results cast doubt upon the importance of the industrial structure of each region in 1949 as an explanation of the different rates of growth of insured numbers subsequently recorded by each region.

Table IV explores this matter more fully.

The second column of this table shows what each region's rate of growth of insured numbers would have been if its particular assortment of industries had expanded or contracted at the same rates as they did in the country as a whole. In other words, it indicates the changes in the total insured numbers caused by differences in the industrial structure of each region. If this had been the only influence at work, the rates of growth recorded by the separate regions would have been markedly different from what they actually were. Eastern region, for example, would have experienced next to the smallest rate of growth: its actual rate of growth was the largest. Scotland would have experienced the seventh largest rate of growth: its actual rate of growth was the smallest.

Clearly, the fact that the industrial structures of the various regions in 1949 were dissimilar is not a sufficient explanation why their insured numbers grew in different proportions. Nor is it equal in importance to the alternative explanation that the individual industry groups in each of the eleven regions increased or decreased their numbers at rates which differed from those for the country as a whole. For the figures in the second column of Table IV—representing structural factors—varied only between 9·2 and 5·2; but those in the third column—showing the contrasted behaviour of similar industries in the various regions—varied between 12·7 and −4·1. The standard deviation of the former is 1·28; that of the latter is 5·03.

Something can be said about the contrasted behaviour of the more important industries—those having larger numbers of insured persons —in the eleven regions. Table V records the rises or falls of insured numbers of 5,000 or more during the period. Percentage changes in 1957, relative to 1949, are shown in italics.

The last heading of this table demonstrates that differences in the rate of growth of insured numbers in expanding industries were more important as causes of the variation between regions than differences

Table V

CHANGES IN INSURED NUMBERS IN CERTAIN INDUSTRIES, 1949-57

(000s omitted)

	Professional services		Vehicles		Engineering etc.		Distributive trades		Paper and printing		Other manufacturing		Chemicals		Food etc.		Metal Manufacture	
Great Britain	420	*32*	237	*25*	343	*19*	399	*19*	92	*19*	46	*19*	80	*18*	117	*15*	45	*8*
Eastern	33	*42*	29	*53*	48	*54*	28	*27*	8	*13*	7	*69*	5	*26*	8	*12*	—	
Southern	32	*44*	28	*39*	32	*46*	22	*22*	6	*34*	—		13	*137*	6	*23*	—	
Midland	38	*37*	43	*22*	33	*15*	33	*12*	—		6	*22*	6	*29*	12	*12*	14	*11*
North Midland	19	*27*	17	*24*	23	*21*	27	*22*	—		—		—		10	*12*	7	*14*
South Western	24	*32*	34	*46*	18	*27*	21	*18*	—		—		—		8	*15*	—	
London and South Eastern	129	*33*	34	*11*	110	*26*	137	*22*	38	*20*	16	*19*	12	*10*	21	*11*	—	
East and West Ridings	24	*25*	13	*21*	14	*10*	25	*15*	—		—		—		12	*18*	5	*11*
Northern	18	*26*	—		15	*10*	17	*14*	—		—		15	*36*	5	*14*	5	*9*
Wales	16	*27*	—		12	*34*	8	*9*	—		—		7	*36*	—		9	*11*
North Western	37	*23*	28	*25*	18	*6*	58	*21*	13	*19*	—		12	*11*	24	*20*	—	
Scotland	38	*26*	6	*9*	22	*11*	21	*9*	—		—		5	*14*	6	*6*	—	
Development areas	60	*28*	24	*24*	42	*11*	55	*14*	10	*19*	6	*18*	16	*14*	24	*17*	8	*4*

Table V (*continued*)

	Building etc		Mining and quarrying		Textiles and clothing		Transport		Public administration		Miscellaneous services		Agriculture		Percentage of regional insured population in 1949		
															Increase	Decrease	Net increase
Great Britain	89	*7*	−11	*−1*	−27	*−3*	−54	*−3*	−98	*−7*	−133	*− 8*	−144	*−18*	9·0	2·3	6·7
Eastern	14	*19*	—		7	*16*	10	*16*	—		− 10	*− 9*	− 22	*−14*	19·1	3·1	16·2
Southern	14	*18*	—		—		—		—		− 11	*− 9*	− 9	*−15*	17·3	2·2	15·1
Midland	18	*12*	—		—		− 5	*−5*	—		− 11	*− 9*	− 9	*−14*	10·5	1·4	9·1
North Midland	16	*12*	8	*11*	—		− 9	*−5*	—		—		− 19	*−20*	10·0	2·0	8·0
South Western	—		—		—		− 7	*−8*	− 5	*− 6*	− 10	*− 9*	− 16	*−20*	10·9	3·6	7·3
London and South Eastern	−18	*−5*	—		—		—		−87	*−18*	− 32	*− 6*	− 21	*−22*	9·7	3·1	6·6
East and West Ridings	10	*11*	—		—		−11	*−9*	—		− 7	*− 6*	− 7	*−16*	6·3	1·8	4·5
Northern	6	*11*	− 9	*−5*	9	*25*	− 9	*−9*	—		—		− 5	*−12*	7·8	2·6	5·2
Wales	− 5	*−7*	−11	*−8*	—		− 6	*−7*	—		—		− 10	*−26*	7·0	3·4	3·6
North Western	15	*10*	− 5	*−6*	−38	*−10*	−18	*−7*	−13	*− 9*	− 26	*−13*	− 12	*−30*	7·3	3·8	3·5
Scotland	12	*7*	− 5	*−4*	− 6	*− 4*	− 8	*−5*	—		− 17	*−11*	− 14	*−12*	5·4	2·4	3·0
Development areas	12	*5*	−32	*−9*	2	—	−20	*−6*	− 7	*− 4*	− 30	*−11*	− 12	*−24*	7·1	2·8	4·3

in the rate of decline in contrasting industries. The former ranged from 19·1 to 5·4 per cent. of the regional insured population; the latter ranged only between 3·8 and 1·4 per cent.

Of the 24 industry groups into which all insured persons are grouped, eight accounted for nearly 88 per cent. of the aggregate rise of insured numbers in all the industries that expanded during 1949-57. These were: Vehicles; engineering, shipbuilding and electrical goods;

TABLE VI

INCREASE IN INSURED NUMBERS DURING 1949-57 AS A PERCENTAGE OF TOTAL INSURED NUMBERS IN 1949

Region	In eight industries that expanded rapidly	In all expanding industries in Table V
Eastern	16·6	19·1
Southern	16·6	17·3
Midland	9·4	10·5
North Midland	8·8	10·0
South Western	10·3	10·9
London and South Eastern	9·1	9·7
East and West Ridings	5·6	6·3
Northern	6·4	7·8
Wales	4·5	7·0
North Western	7·1	7·3
Scotland	5·3	5·4

food, drink and tobacco; paper and printing; chemicals; professional services; distributive trades; and building. Table VI compares the percentage increase in each region's insured population during 1949-57 due to its performance in these eight industries and in all the numerically-important expanding industries cited in Table V.

The figures in the first column are such a large proportion of those in the second column as to demonstrate that it was each region's performance in the eight industries named above that outstandingly accounted for its particular rate of growth of insured numbers. Of these, five are manufacturing industries and three service industries. If it is assumed that manufacturing industries are primary industries that generate income and so create employment in service industries (an assumption which is less applicable in regions such as London and South Eastern and South Western, where some service industries are primary industries) it is interesting that the increase of insured numbers in these five manufacturing industries follows the same regional order as that for the eight manufacturing and service industries combined. It could therefore be supposed that, whether a region expanded its insured numbers by much or little depended on whether

it did so in these five manufacturing industries. Incidentally, of these, two—vehicles and the engineering, shipbuilding and electrical goods group—were more responsible for growth of insured numbers than the other three in all regions except two. For these two industry groups increased their insured numbers more, proportionately, than the other three—the proportion ranging from 78 : 22 in Eastern region down to 58 : 42 in Wales. Exceptionally, in North Western region the proportion was 48 : 52, and in Northern region 44 : 56.

A word may be added about the industries that decreased their insured numbers. As already said, the variation in the rate of decrease in contracting industries was considerably less significant as a cause of differences in the growth of insured numbers between regions than the variation in the rate of increase in expanding industries. All regions lost numbers in agriculture, and all except North Midland and Northern and Wales in miscellaneous services; and these two groups accounted for nearly three-fifths of the total decline in industries losing insured numbers. In the remaining contracting industries, London and South Eastern suffered a marked fall in public administration; somewhat substantial falls occurred in textiles in North Western, and in Wales and Northern regions in mining and transport; and Scotland suffered moderate falls in textiles, mining and transport.

II

Attention may now be given to the eight Development Areas—Scottish, North Eastern, Merseyside, North East Lancashire, South Lancashire, Cumberland, Wrexham and South Wales—treating them as a whole.

Their total insured population grew from about 3,650,000 to about 3,900,000[1] between 1949 and 1957. This increase of 6·9 per cent. may be set besides the greater national increase of 7·5 per cent. Although, however, the Development Areas expanded their numbers less than the country as a whole, they expanded faster than the four regions[2] of which they formed parts—in combination these latter increased their numbers by only 4·2 per cent.

In 1949 the Development Areas had 57 per cent. of their total insured numbers in industries that expanded later, and 43 per cent. in industries that contracted later—percentages that were identical with those for the country as a whole. To illustrate the influence exerted by this industrial structure of 1949 upon the growth of insured

[1] These figures are approximate.
[2] Their insured numbers in 1949 were nearly 51 per cent. of those of the four regions.

numbers in the Areas up to 1957, if insured numbers in their industries had grown at the same rates as in the country as a whole, they should have risen by 9·7 per cent.; in fact, they rose by only 6·9 per cent. Clearly, therefore, either expanding industries increased their numbers less quickly in the Areas than in the country as a whole, or contracting industries decreased their numbers more quickly, or both.

Table V shows that the more important reason why the Development Areas did not match the national rate of growth of insured numbers is that expanding industries grew more slowly—7·1 per cent. of the 1949 total insured population, against 9·0 in the country as a whole. That numbers in the Areas' contracting industries fell more quickly than in the country as a whole—2·8 per cent. against 2·3 per cent. in the country as a whole—mattered less. In the country generally, the eight industries that expanded their numbers outstandingly accounted for nearly 88 per cent. of the total rise in numbers in all expanding industries; in the Development Areas the corresponding figure was nearly 87 per cent. It is apparent, therefore, that the growth of numbers in the Areas' insured population was due predominantly to these eight industries. Indeed, of the above figure of 7·1 per cent., 6·7 per cent. was due to them. The Areas almost equalled the national rate of growth of numbers in vehicles, paper and printing, other manufacturing and food industries. They failed to do so in engineering (especially), distributive trades, professional services, and chemicals. The main cause of the lower figure in the engineering group was the decline of shipbuilding and ship-repairing—by some 16,000 persons.

It is worthy of notice that the Development Areas increased their insured numbers in all their main expanding industries by more than the four regions in which they were located—by 7·1 per cent. against 6·8 per cent. Numbers in the eight more-important expanding industries also surpassed the regions—by 6·7 per cent. against 6·1 per cent.

That the Areas' contracting industries decreased their insured numbers more than in the country as a whole is principally due to the falls in mining and quarrying (over 32 per cent. against 1·3 per cent.), agriculture (over 24 per cent. against 17·5 per cent.) and transport (over 6 per cent. against 3·1 per cent.). Plainly, the contraction in the extractive industries of mining and agriculture were important matters for the Development Areas.

III

To turn now to consider unemployment, during 1949-57 the average percentages of unemployment in the eleven regions were as follows:

TABLE VII

REGIONAL UNEMPLOYMENT, AS PERCENTAGES OF INSURED PERSONS, 1949-57

(monthly averages)

Region	1949	1950	1951	1952	1953	1954	1955	1956	1957	Average 1949-57
Great Britain .	1·5	1·5	1·2	2·0	1·6	1·3	1·1	1·2	1·4	1·4
North Midland .	0·6	0·6	0·5	1·0	0·7	0·6	0·5	0·6	1·0	0·7
Midland . .	0·6	0·5	0·4	0·9	1·1	0·6	0·5	1·1	1·3	0·8
London and South Eastern .	1·1	1·1	0·9	1·3	1·2	1·0	0·7	0·8	1·0	1·0
East and West Ridings . .	0·9	0·9	0·9	1·9	1·2	0·9	0·7	0·8	0·9	1·0
Eastern . .	1·1	1·2	0·9	1·3	1·3	1·2	0·9	1·0	1·3	1·1
Southern . .	1·4	1·4	1·1	1·4	1·4	1·1	0·9	1·0	1·3	1·2
South Western .	1·4	1·4	1·2	1·5	1·6	1·5	1·2	1·2	1·8	1·4
North Western .	1·7	1·6	1·2	3·6	2·1	1·5	1·4	1·3	1·6	1·8
Northern . .	2·6	2·8	2·2	2·6	2·4	2·2	1·8	1·6	1·7	2·2
Wales . . .	4·0	3·7	2·7	2·9	3·0	2·5	1·8	2·0	2·6	2·8
Scotland . .	3·0	3·0	2·5	3·3	3·1	2·8	2·4	2·4	2·6	2·8

The average unemployment in the eleven regions during 1949-57 varied from one half to twice that for Great Britain. The lowest figure occurred in the two Midland regions; the four regions, London and South Eastern, East and West Ridings, Southern and Eastern, were all below the average for Great Britain and their figures did not differ markedly; South Western had the same figure as Great Britain; the four regions (North Western, Northern, Wales and Scotland) that contained the Development Areas had the highest figures, but there were appreciable differences between each of them.

What caused the average rates of unemployment to be so different in the various regions? Was it due to their differing industrial structures? This is a possible explanation: for, in the country as a whole, different industries experienced rates of unemployment during 1949-57 varying from 0·3 per cent. in mining and quarrying to 2·5 per cent. in building and in miscellaneous services. In fact, however, this explanation accounts for very little of the observed divergence between regional unemployment percentages; and it would seem that individual industries in each region did not have unemployment at the percentage rates recorded by the same industries in the country as a whole. Presumably, this was because the demand for labour, relative to the supply, differed in the various regions. Where unemployment was low, it is to be supposed that the demand for labour was high relative to supply; and vice versa.

It is difficult to find any statistical indicator of demand other than the actual increase of numbers insured in each region during the period. Table I shows these. The variation between the regions was considerable—ranging from an increase of 18·0 per cent. in Eastern region down to 3·7 per cent. in Scotland. If it is assumed that these figures illustrate the varying strength of demand for labour in the eleven regions, it is natural to ask what caused that demand to expand by

TABLE VIII

INCREASES AND DECREASES IN INSURED NUMBERS IN SELECTED INDUSTRIES, 1949-57

Region	Percentage of regional insured numbers in 1949			
	Increase	Decrease	Net increase	Net increase in all industries
Eastern	16·6	1·5	15·1	18·0
Southern	16·6	1·9	14·7	17·5
Midland	9·4	1·2	8·2	9·7
North Midland	8·8	1·6	7·2	8·8
South Western	10·3	3·4	6·9	7·9
London and South Eastern	9·1	2·5	6·6	7·5
North Western	7·1	2·3	4·8	3·8
Northern	6·4	1·7	4·7	5·5
East and West Ridings	5·6	1·3	4·3	5·7
Scotland	5·3	1·8	3·5	3·7
Wales	4·5	1·6	2·9	4·9

more or less in the different regions? Help in answering this question is provided by the facts that the eight industries mentioned earlier accounted for about 88 per cent. of the total growth of insured numbers in industries that expanded there, and that the four industries mentioned earlier accounted for about 89 per cent. of the total decline in insured numbers. (The eight expanding industries were: Vehicles, engineering, shipbuilding and electrical goods; food, drink and tobacco; paper and printing; chemicals; professional services; distributive trades; building. The four contracting industries were: Agriculture; miscellaneous services; public administration; transport.) If the increases and decreases are compared, and the figure resulting is expressed as a percentage of the insured population of 1949 in each region, this percentage reflects the strength of the net demand for labour in the twelve industries mentioned. Table VIII records the findings. The last column shows the percentage increase in total numbers.

There is a measure of consilience between the third and fourth columns of this table. Thus, the first six regions are the same, and the regional order is the same. The last five regions are the same, although

the regional order is not. The conclusion is that, since the twelve industries named were the principal contributors to the increase and decrease of demand, it was the different behaviour of these in the various regions that mainly accounted for variations in total demand for labour. And, outstandingly, it was the different behaviour in the expanding industries that mattered.

On the side of supply of labour, Table IX shows the estimated changes in the numbers of persons of working age between 1949 and 1956.

TABLE IX

REGIONAL CHANGES IN THE NUMBERS OF PERSONS ESTIMATED TO BE OF WORKING AGE (MALES, 15-64, FEMALES, 15-54), MID-1949 TO MID-1956

Region	Change in Numbers (000s)	Percentage of 1949
Great Britain	−369	−1·3
Eastern	143	7·7
Southern	57	3·5
Midland	16	0·6
North Midland	4	0·2
South Western	−28	−1·5
Northern	−31	−1·6
East and West Ridings	−55	−2·2
Wales	−35	−2·3
North Western	−111	−2·8
London and South Eastern	−226	−3·3
Scotland	−103	−3·3

Since the table does not take account of women aged 55 or more, nor of men aged 65 or more who were employed, it does not indicate accurately the total supply of labour. But, since within the age groups of 15-64 for males, and of 15-54 for females, there was a decline in the country as a whole, the gains in numbers recorded by the first four regions and the losses recorded by the other seven regions were probably due more to migration than to natural factors. Table X bears on this.

Those first four regions (together with South Western) evidently did benefit from inward migration, while the remaining six regions lost numbers as a result of migration out of them.

The gains in numbers secured by Eastern and Southern regions from the influx of migrants were somewhat remarkable; all the regions losing people by migration lost appreciable fractions of their natural increase—ranging from about one-third to nearly four-fifths.

How important was net migration as a cause of the changes in numbers of persons of working age shown in Table IX? The next table gives an indication of its importance.

TABLE X

ESTIMATED NET MIGRATION OF CIVILIAN POPULATION INTO, OR OUT OF, REGIONS AS A PERCENTAGE OF NATURAL INCREASE, MID-1947-53 AND MID-1953-57[a]

Region	1947-53	1953-57
Eastern	143	249
Southern	88	148
Midland	−17	14
North Midland	6	34
South Western	30	57
Northern	−37	−39
East and West Ridings	−56	−46
Wales	−63	−41
North Western	−33	−41
London and South Eastern	41	−71
Scotland	−62	−77

[a]Approximate figures.
Source: Registrar General.

TABLE XI

NET CIVILIAN MIGRATION INTO, OR OUT OF, REGIONS, MID-1947-53 AND MID 1953-57, AS A PERCENTAGE OF THE MID-1951 CIVILIAN POPULATION[a]

Region	1947-53	1953-57
Eastern	7·2	14·0
Southern	4·7	7·8
Midland	−1·1	0·8
North Midland	0·4	1·7
South Western	1·1	1·8
Northern	−2·3	−2·3
East and West Ridings	−2·7	−1·7
Wales	−2·8	−1·2
North Western	−1·4	−1·4
London and South Eastern	1·8	−2·4
Scotland	−3·7	−5·0

[a]Approximate figures.
Source: Registrar General.

Inward net migration was an outstandingly significant cause of the rise in numbers of working age in Eastern and Southern regions in the ten-year period 1947-57. On the other hand, Scotland's numbers

of working age evidently were seriously depleted by outward net migration. In none of the other four regions losing significantly from outward net migration was the proportion low. Apart from East and West Ridings region, the regions which lost the largest fractions of population by outward net migration were those in which Development Areas were located—Northern North Western, Wales and Scotland.

TABLE XII

NUMBERS INSURED AS A PERCENTAGE OF PERSONS OF WORKING AGE, 1949 AND 1956

Region	1949	1956	Percentage increase
Great Britain	67·7	73·2	8·1
Southern	56·9	63·7	11·9
London and South Eastern	74·6	82·0	9·9
Midland	71·4	78·1	9·4
South Western	57·7	62·8	8·8
North Midland	66·8	71·7	7·4
East and West Ridings	70·4	75·5	7·4
Eastern	56·8	60·9	7·2
Scotland	66·5	71·3	7·2
Wales	57·3	61·4	7·1
Northern	63·3	67·7	6·9
North Western	73·0	77·7	6·5

TABLE XIII

PERCENTAGES OF VACANCIES TO REGIONAL INSURED NUMBERS AND PERCENTAGES OF REGIONAL UNEMPLOYMENT, 1949-57

Region	Vacancies (January and July)	Unemployment
North Midland	2·2	0·7
Midland	2·1	0·8
Eastern	2·0	1·1
Southern	2·0	1·2
London and South Eastern	1·9	1·0
East and West Ridings	1·8	1·0
South Western	1·8	1·4
North Western	1·6	1·8
Northern	1·1	2·2
Wales	1·1	2·8
Scotland	1·0	2·8

Not only was the regional supply of labour affected by the changes in numbers of persons of working age recorded above, but also by changes in the proportions of such persons seeking employment and causing, therefore, alterations in the numbers of insured persons. The

rate of increase during the period 1949-56 differed from one region to another.

Illustrations having been given of factors at work to alter the demand for, and the supply of labour in each region, an illustration can be given of how the demand for labour relative to the supply of labour in each region resulted in more or less unemployment during the period 1949-57.

TABLE XIV

ESTIMATED NET MIGRATION AND UNEMPLOYMENT, 1947-57

Region	Net migration[a] (mid 1947-57)	Percentage unemployment (1949-57)
Scotland . . .	−4·2	2·8
Northern . . .	−2·3	2·2
East and West Ridings .	−2·3	1·0
Wales	−2·1	2·8
North Western . .	−1·4	1·8

[a] The estimated net migration is expressed as a percentage of the estimated civilian population at June, 1951.

If it can be assumed that figures of vacancies reflect the demand for labour relative to supply in each region, these can be compared with the percentage figures of unemployment in each region. With the exception of Eastern and Southern regions, the regional order of vacancies agrees with the regional order of unemployment. The coefficient of correlation between the two sets of figures is −·96. A high regional demand for labour relative to supply goes with low unemployment; and vice versa.

On the theory that workpeople should migrate from regions suffering high unemployment to those enjoying low unemployment, and that if they did so then regions suffering high unemployment would benefit from a fall in their high unemployment, certain figures may be offered. The following table compares percentage unemployment in each region with net migration.

These figures do not seem to support this theory. Scotland had the highest rate of emigration, but also (equal with Wales) the highest average unemployment. North Western had the lowest rate of emigration, but also the next lowest (after East and West Ridings) unemployment. Northern and East and West Ridings had equal rates of emigration, but their respective percentages of unemployment were 2·2 and 1·0.

Another comparison can be made of unemployment percentages with net migration of insured persons as estimated by the Ministry of Labour and National Service.

TABLE XV

UNEMPLOYMENT AND ESTIMATED NET MIGRATION OF INSURED PERSONS AS PERCENTAGES OF INSURED NUMBERS

Region	Net migration (1951-57)	Unemployment (1949-57)
Wales	−3·0	2·8
Scotland . . .	−2·3	2·8
Northern . . .	−1·5	2·2
East and West Ridings .	−1·2	1·0
North Western . .	−0·8	1·8

Estimated net migration of insured persons was highest for Wales, but Wales (with Scotland) had the highest percentage unemployment. North Western had the lowest net migration and next to the smallest percentage of unemployment. Northern and East and West Ridings had not greatly dissimilar net migration, but Northern's percentage of unemployment was more than twice that of East and West Ridings. In this case, besides, the figures do not appear to support the theory.

These results suggested further study of migration and unemployment. This was undertaken by Dr. F. R. Oliver and Mr. D. A. Shinton of the University of Exeter. Figures of net migration of insured persons from nine[3] regions of Great Britain were compared with the difference between regional and national unemployment percentages for the six years mid-1951 to mid-1957. There were thus 54 observations of x, regional unemployment minus national unemployment (both expressed as percentages of the estimated number of insured persons), and of y, net migration of insured persons from each region during the year (expressed as a percentage of insured persons at the beginning of the year). The coefficient of correlation is 0·56, indicating a reasonably good relation between the x's and the y's. The regression is $y = 0{\cdot}27 \times 0{\cdot}09$, indicating that a difference in relative regional unemployment was associated with a difference in migration of about a quarter the size.

This result is interesting. It suggests that migration from regions experiencing relatively high unemployment during 1949-57 did not appreciably reduce that unemployment.

[3] The figures cover the eleven standard regions of Great Britain, but the number is reduced to nine because the Ministry of Labour figures for London and South Eastern, Southern and Eastern regions are not stated separately.

IV

Unemployment in the Development Areas (considered as a whole) may be referred to briefly.

TABLE XVI

UNEMPLOYMENT IN ALL DEVELOPMENT AREAS AS PERCENTAGES OF INSURED PERSONS, 1949-57

(monthly averages)

	1949	1950	1951	1952	1953	1954	1955	1956	1957	Average 1949-57
Great Britain .	1·5	1·5	1·2	2·0	1·6	1·3	1·1	1·2	1·4	1·4
Development areas . . .	3·6	3·5	2·6	3·2	3·0	2·6	2·1	2·1	2·3	2·8
Ratio to Great Britain .	240	233	217	160	188	200	191	175	165	200

The relative severity of unemployment in the Development Areas compared with Great Britain fell—although discontinuously—from nearly two and a half times to somewhat more than one and a half times.

Demand for labour increased by less in the Development Areas than in Great Britain during the period: insured numbers rose by only 6·9 per cent. against 7·5 per cent. in Great Britain.

The eight expanding industries accounted for 6·7 per cent. of the 7·1 per cent. by which all expanding industries increased their insured numbers; and the four contracting industries accounted for 2·6 per cent. of the 2·8 per cent. by which all contracting industries decreased their insured numbers. These figures of 6·7 per cent. and 2·6 per cent. compare with similar figures for Great Britain of 8·8 per cent. and 1·7 per cent. respectively. Evidently, the reason why the Development Areas failed to expand their demand for labour as quickly as did the country as a whole is twofold—the expanding industries grew less quickly and the contracting industries declined more quickly.

It is not feasible to say much about the supply of labour in the Development Areas because figures are not available. But since they accounted for more than one-half of the total insured population of the four regions of which they formed parts (Northern, North Western, Wales and Scotland) it may be that they shared the experience of those regions concerning changes in the supply of labour.[4] Of the six regions

[4] This is not unlikely, for the national registration figures of 1948-51 showed that the Development Areas accounted for not less than two-thirds of the net migration from their respective regions.

that recorded falls in the numbers of persons of working age (Table IX), four were those containing the Development Areas—the percentage declines between 1949-56 ranged from 1·6 per cent. to 3·3 per cent. Again, of the six regions that experienced net outward migration during 1947-53 and 1953-57, four were those of which the Development Areas formed parts (Table XI). Furthermore, of the five regions that recorded the highest rates of migration, these four were prominent: the estimated average net civilian outward migration during 1947-57 ranged from 1·4 per cent. of the mid-1951 population in North Western region to 4·2 per cent. in Scotland.

It is not feasible to illustrate how the demand relative to the supply of labour in the Development Areas resulted in the higher rates of unemployment that prevailed in them during the period because figures of vacancies are not available for them. But again reference may be made to the four regions which contain the Development Areas. Table XIII shows that these had the lowest percentage of vacancies and the highest percentage of unemployment during 1949-57. This suggests that, relative to the supply of labour, demand lagged behind in the Development Areas. Table XVI, however, points to the inference that this lag became less as the years passed; for the ratio of the percentage of unemployment in the Development Areas to unemployment in the country as a whole fell from 240 in 1949 to 165 in 1957. It is not improbable that the new industrial developments in the Development Areas stimulated by the Board of Trade under the Distribution of Industry Act, 1945, helped to cause the demand for labour to rise relative to the supply and, thereby, to reduce the percentage of unemployed persons.

V

What are the main findings of this study?

(i) Employment in the eleven standard regions of Great Britain increased at markedly dissimilar rates during the eight years 1949-57.

(ii) While this was due in a measure to the different structure of industry in the eleven regions in 1949, it was due more to the fact that similar industries expanded or contracted their insured numbers at different rates in different regions. And, especially, it was caused by the somewhat pronounced variation in the rates by which insured numbers grew in the principal expanding industries—vehicles; engineering, shipbuilding and electrical goods; food, drink and tobacco; paper and printing; chemicals; professional services; distributive trades; building.

(iii) Employment in the eight Development Areas, taken together, increased slower than in the country as a whole, but faster than in the regions where the Development Areas were located. The major reason was that the above-mentioned expanding industries increased their employment less in the Development Areas than in the country as a whole; but the minor reason was that coal-mining and agriculture decreased their employment more than in the country as a whole.

(vi) Average unemployment in the eleven regions during 1949-57 exhibited considerable variation from one region to another. A partial cause was the different industrial structures of the regions. But more significant was the fact that similar industries in the eleven regions experienced different rates of unemployment.

(v) These different rates of unemployment in similar industries presumably resulted from regional differences in the demand for, and supply of labour.

(vi) The regions that had higher percentages of unemployment recorded high rates of net civilian emigration and also high rates of emigration of insured workpeople. During 1949-57, therefore, emigration does not appear to have helped much to reduce regional unemployment. This finding is supported by a study of the regions that had high percentages of unemployment and also high rates of net emigration.

(vii) The eight Development Areas, together, experienced more than the average percentage of unemployment that prevailed in the country as a whole during 1949-57. Nevertheless, during this period, the Development Areas came to have a smaller proportion of Great Britain's unemployment. The finding that the high rate of net emigration did not appear substantially to reduce high percentage unemployment in the regions is probably true also of the Development Areas.

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LOCAL UNEMPLOYMENT AND THE 1958 ACT[1]

THIS is to be an examination of the Distribution of Industry (Industrial Finance) Act, 1958, and a discussion of what further action may be necessary to deal with the problem of local unemployment.

In the years immediately after the second World War, considerable and successful pressure was put on industrialists to locate new factories in the development areas. Then from about 1949, the pressure was progressively eased. The following table shows one aspect of the decline:

TABLE I

CAPITAL EXPENDITURE BY THE BOARD OF TRADE ON THE PROVISION OF FACTORIES TO RENT IN THE DEVELOPMENT AREAS[2]

(£m.)

1946/7	1947/8	1948/9	1949/50	1950/51	1951/52
5·7	12·5	11·0	6·5	5·0	5·0
1952/3	**1953/4**	**1954/5**	**1955/6**	**1956/7**	**1957/8**
3·6	3·0	4·3	5·8	4·9	2·7

The original reductions imposed by the Labour Government were continued and increased by their successors. The Conservative administration apparently believed that the problem was solving itself, and that the development areas were like vehicles whose self-starters had failed—a few hearty pushes and all would be well. Certainly, the Government put considerable faith in the idea that private enterprise would take up the running and that unemployment would thus fall. There was something in this belief, as the following table shows:

TABLE II

EMPLOYMENT PROVIDED BY NEW FACTORY BUILDING IN SCOTLAND[3]

	1945-51	1952-Sept. 58
In official estate factories .	30,700	18,000
In privately financed factories	20,000	31,000
	50,700	49,000

[1] I am indebted to the Durham Colleges Research Fund for making possible a tour of several of the areas of high unemployment, and to various officials of the Board of Trade, Ministry of Labour, County Planning Departments and Industrial Estates for the helpful discussions which I have had with them.

[2] *Official Report*, 24th April, 1958; Vol. 586, c. 1139.

[3] Calculated from figures given by the Economic Secretary to the Treasury during a debate on Scottish industry. See *Weekly Hansard*, 2nd July, 1959; Vol. 462, cc. 630-1.

Moreover, unemployment in each of the three problem regions of Wales, Scotland and the North of England fell fairly steadily during the years when least was spent on trading estate factories. The national rate was also falling from mid-1952 to early 1956, but in Wales and the Northern Region, unemployment was falling more quickly: —

EXCESS OF UNEMPLOYMENT PERCENTAGE OVER NATIONAL AVERAGE
January

Region	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
Wales .	3·5	2·8	2·4	2·0	1·5	1·4	1·3	1·2	0·7	1·1	1·7	1·8
Northern .	1·5	1·2	1·3	1·3	1·1	0·8	1·0	1·1	0·7	0·2	0·3	1·1
Scotland .	1·5	1·6	1·6	1·7	1·5	1·7	1·6	1·6	1·5	1·2	1·6	2·6

These figures do not support the charge that the immediate problems of these regions were neglected in the years from 1951 to 1956. What seems to have happened was that the Government, plagued with short-term worries arising from inflation and the smallness of the gold reserves, took advantage of the fact that the general inflation was obscuring the weak long-term position of certain industries, and gave insufficient thought for the future. The recession, however, appears to have caused the authorities to fall into the opposite error. The measures taken to tackle the problem of local unemployment seem to be based on the assumption that most of the difficulties of 1957-8 were structural.[4] There seems insufficient recognition of the fact that since 1957 we have been passing through a mild cyclical recession in which the longer term declines, deferred by the boom, have been temporarily accelerated.

Action has been based mainly on the Distribution of Industry Act, 1958, which we shall now examine.

Experience of the earlier distribution of industry legislation led the Board of Trade to regret the rigidities which had been built into it, so that when they decided that new legislation was needed to help reduce local unemployment, they sought for something much more flexible. In February, 1958, the President of the Board of Trade was already declaring that each area of unemployment had special problems and needed different and very careful handling.[5] Again, after the

[4] In the first half of 1958, the President of the Board of Trade apparently believed that local unemployment was entirely structural. See *Official Report*, 24th February, 1958; Vol. 583, c. 149, and 16th April, 1958; Vol. 586, c. 192.
[5] *Official Report*, 24th February, 1958; Vol. 583, c. 148.

Chancellor of the Exchequer, in his Budget Speech, had announced that the banks would be allowed to relax their credit squeeze in places with high unemployment and that an amending Bill to the 1945 Distribution of Industry Act was to be introduced,[6] the President stressed the need for flexible powers and argued that because of the wide discretion needed, no attempt would be made in the Bill to define high unemployment in terms of a percentage.[7] In the debate on the Second Reading, this theme was repeated by the Minister of Labour,[8] who did not think it possible to lay down the same fixed criterion for all localities, and by the Parliamentary Secretary to the Board of Trade.[9]

Clearly the intentions were good. What of the execution? The Act of 1958 is a fairly simple piece of legislation. Its intention was to switch the focus of the official 'work to the workers' policy away from the old development areas towards widely dispersed places, some in the development areas, some not, but all suffering from relatively high unemployment. Along with the change in focus went a change in technique. Whereas under the old legislation, the Government's most important contribution was the building of factories to let,[10] now increased emphasis would be placed on lending to businessmen. This change was to be achieved by continuing the virtual ban on the building of new factories, excluding extensions, on the estates in most parts of the development areas, not extending these factory-building powers to any other districts outside, but instead, widening Section 4 of the 1945 Distribution of Industry Act to cover additional areas of employment and further types of establishment.

Section 4 originally empowered the Treasury to make grants or loans, on the recommendation of the Development Areas Treasury Advisory Committee, to industrial undertakings which were in the development areas and which complied with the requirements of the proper distribution of industry. The Distribution of Industry (Industrial Finance) Act, 1958, extends these powers to enable grants or loans to be made to an undertaking which is not an industrial establishment, is not in a development area and which does not comply with the proper distribution of industry, provided only that the Board of Trade are satisfied that the likely result will be a fall in unemployment

[6] *Ibid.*, 15th April, 1958; Vol. 586, cc. 57-8.
[7] *Ibid.*, 16th April, 1958; Vol. 586, c. 193.
[8] *Ibid.*, 30th April, 1958; Vol. 587, cc. 391-5, 400-1.
[9] *Ibid.*, 30th April, 1958; Vol. 587, c. 507.
[10] By early 1958, official expenditure on factory building in the development areas amounted to £70 m., compared with D.A.T.A.C. loans of £6·9 m. See *Official Report*, 30th April, 1958; Vol. 587, c. 509.

'in any locality in which a high rate of unemployment exists and is likely to persist'.[11]

It was decided not to add to the Bill a schedule of areas eligible for assistance, so the Board of Trade are completely free to add to or subtract from the list of 'D.A.T.A.C. areas.' This is a definite improvement over the earlier system of formal scheduling of development areas. The first list of places eligible for assistance was announced in Parliament on 30th July, 1958, and several additions have been made since. It seems that further substantial additions are unlikely, unless there are removals, because on 10th April, 1959, the Minister of State, Board of Trade, informed the House that D.A.T.A.C. areas now contained 15 per cent. of the insured population and that this was about the limit to which the Board of Trade should go if they were 'to help the worst places'.[12]

This comment, implying that the only way to aid these places is to guide industry to them, suggests a certain rigidity of mind. This is also reflected in the operation of the Act, for despite the Board of Trade's expressed desire for flexibility, the application of the new policy seems to be more rigid than might reasonably have been hoped. Before developing this argument it is necessary to note that certain inflexibilities were built into the Act while others have been created in its administration. It is not possible to separate these precisely but one of the most important built-in rigidities is the limitation imposed on the Development Areas Treasury Advisory Committee, under Section 4 of the 1945 Act. The Committee cannot approve a loan unless the undertaking which seeks assistance has good prospects of commercial success but has tried and failed to obtain finance through normal channels on reasonable terms. These criteria are somewhat contradictory, especially in view of the official requests to the banks to lend more freely in D.A.T.A.C. areas. Obviously, the Committee may interpret their brief a little generously, but it is worth noting that after some seven months' experience of the new Act, two Members of Parliament, one Labour, one Conservative, were complaining that the rules made it difficult for industrialists to obtain help.[13] It would

[11] Distribution of Industry (Industrial Finance) Act, 1958, Explanatory and Financial Memorandum. It is true that the Board of Trade can withhold an I.D.C. if they think that a project does not comply with the requirements of the proper distribution of industry, but the refusal of a certificate, on any grounds, seems to be rare in the development, or D.A.T.A.C., areas.

[12] *Weekly Hansard*, 10th April, 1959; Vol. 453, c. 612.

[13] *Weekly Hansard*, 10th February, 1959; Vol. 445, cc. 1101, 1102.

clearly not be easy to tell a Treasury Committee, in an Act of Parliament, to take risks with public money, yet some considerable risks may be necessary if any real help is to be given. It might have been possible to have approached the problem indirectly by giving the Committee power to recommend wider forms of financial help, including the direct purchase of various sorts of shares. This was one advantage which the Nuffield Trust for the Special Areas enjoyed. The managers of the Trust told the Select Committee on Estimates in 1955 that it is sometimes better to lend money in a form which the receiver knows he can 'keep and rely on and build up on'.[14] Coupled with this was their statement that, while loans were five times as great as investments on Clydeside, investments were two and a half times the size of loans on the North East coast, because many more small firms were assisted in the North East.[15] This point is particularly interesting when it is remembered that in many of the remoter new D.A.T.A.C. areas much lending will be, or should be, to small local units.

There are, of course, difficulties here of the greater permanence of investments and the possible greater bill for the taxpayer. On the first point, the Nuffield Trust sometimes lent on redeemable preference shares and in other cases has been able to sell its shares to ordinary financial interests after the borrower has become firmly established.[16] Thus there is no reason to assume that this form of lending would inevitably lead to a permanent holding of shares by the Government.

On the second problem, the managers of the Trust told the Select Committee that, in accordance with the intentions of the founder, the Trust took greater risks than would be commercially reasonable. Moreover, the great bulk of its lending had been in the trickier years of 1937-39, it had often lent jointly with the Treasury and normally ranked behind it as a creditor,[17] and by 1955 most of its losses were behind it, for it had only £250,000 at risk compared with D.A.T.A.C. loans outstanding of £4,400,000.[18] Thus, it is not surprising that the Trust had made capital losses of 12·4 per cent. on loans of £2,250,000, compared with the Treasury's 4·4 per cent. on £3,500,000. What is

[14] Minutes of Evidence taken before the Select Committee on Estimates, Session 1955-56, Development Areas, Q. 316.

[15] *Ibid.*, Q. 342.

[16] *Ibid.*, Q. 283.

[17] *Ibid.*, Q. 300.

[18] *Ibid.*, Q. 287 and memorandum submitted by the Treasury, p. 23. £100,000 of the Trust's outstanding debts were regarded as doubtful or bad, but the Treasury also believed that further losses had already occurred on their loans.

surprising is that, despite everything, the Nuffield Trust had broken even. Capital losses of £278,000 and administrative expenses of £114,000 were covered by interest and dividends of £416,000. The Treasury had done little better, for between 1946 and 1953 it had earned interest of only £261,000 to set against losses of £152,000 and expenses of £18,000. There is no question of differences in commercial ability, for two of the original trustees later served on D.A.T.A.C. Altogether, there is no reason to argue that the taxpayer's brow would have become furrowed if the Advisory Committee had been permitted to take a more dashing attitude and if the Treasury had been allowed more flexibility in its lending. Here, I believe, an opportunity has been missed in the drafting of the 1958 Act.

We can now turn to the rigidities which have been created during the year in which the Act has been administered. The first appeared with the listing of areas to be assisted. The Act merely made it possible for grants and loans to be given to help reduce unemployment in localities where it was high and likely to persist. This fairly general approach has been turned into a much more specific one by the Board of Trade. Despite the conscious decision not to define high unemployment quantitatively in the Bill and despite the stress on the different problems of different areas, only a few days after the Act had received the Royal Assent, the President of the Board of Trade was declaring that, in deciding the areas in which loans would be available, 'the unemployment percentage is the criterion we use'.[19] Subsequent answers to questions revealed that the criterion was even more rigid than that, for to get on the list, an area needed to have achieved a rate of 4 per cent. wholly unemployed over twelve months.[20] To a small extent, this is an encouraging approach, for it appears to reflect an acceptance of the argument that distribution of industry policy is concerned with the problems of long-term unemployment, not with the troubles of the trade cycle. Even this step forward is a rather fumbling one, for the authorities seem to think that they can separate cycle from trend by the use of their measuring rod of '4 per cent. wholly unemployed for a year'. The Government seem to have swung over from neglecting the trend in the boom to ignoring the cycle in the recession. It will be interesting to see which of the listed places find their unemployment falling well below the magic number when the national average returns to below $1\frac{1}{2}$ per cent. At least they can be taken off the list without consulting local authorities.

[19] *Official Report*, 31st July, 1958; Vol. 592, cc. 1580-1.
[20] *Ibid.*, 13th November, 1958; Vol. 595, c. 539, and Vol. 596, c. 212.

The mechanical approach has other drawbacks. It means that certain places are excluded which might be included. So far, the Board of Trade has ignored the argument that the number unemployed in an area can be as fair a criterion as the percentage. One can appreciate their problem; in October, 1958, Birmingham's 1·9 per cent. unemployed constituted over 11,000 people. The most serious aspect of the use of 4 per cent. as an exclusive rule, however, is that it reveals a failure to profit from experience. For the less remote areas, there is to be a continuation of the old policy, operated from 1946, of guiding firms to the points of high unemployment. The main disadvantage is that the firms which are most likely to be pushed into such places are the growing ones. These include new types of production on which our future prosperity will depend and which ought, therefore, to be sensibly located.

The Opposition, if it had its way, would be more at fault than the Government. The main theme of the Labour Party has been presented by Mr. Douglas Jay, but there is no need here to examine his multi-point policy in great detail.[21] It has been said in *The Economist*, *Manchester Guardian* and *Financial Times* that there is little difference between his proposals and the Government's. There is, however, one vital difference. Mr. Jay's whole analysis rested on the illusion that a limitless expansion of investment is possible.[22] He rejects the idea that efforts must be concentrated in order to be useful, and advocates the bold extension of the boundaries of the development areas to include all the new D.A.T.A.C. areas; a policy of building estates and single factories wherever there is unemployment, 'including the pit villages'; a much tougher I.D.C. policy for London; the full 1945 Distribution of Industry Act treatment, including Sections 3 and 5, for the whole of his extended development areas; bigger rent concessions all round, and at least a dozen advance factories.

All this reflects an even greater unwillingness to learn from the experience of the last fourteen years and is based on the apparent assumption that resources in the building industry are unlimited. It is a pity that this scheme is so over-ambitious, particularly as some of the ideas make very good sense. The claims that new developments may be deterred by the failure to clear derelict sites, that it is necessary to think ahead, watch where unemployment is likely to develop and to achieve greater inter-departmental co-operation in tackling it, all

[21] It is presented in *Unemployment—the Douglas Jay Report* (March, 1959), and *Weekly Hansard*, 18th March, 1959; Vol. 450, cc. 417-33.

[22] 'Both the energy and the investment should be increased until they are adequate for full development, wherever it is needed, in any part of these islands' (ibid., c. 432). See also *Official Report*, 30th April, 1958; Vol. 587, cc. 401-3.

deserve serious consideration. But the whole approach, especially the inflexible assumption that all local unemployment can be treated in one main way, by the building of subsidised factories, has apparently enabled his political opponents to avoid serious consideration of his arguments.

It is not possible to take up all the Opposition's proposals here. Some have been, or will be, dealt with, by implication, in the examination of Government policy. The only main point which has not come up at all is the question of Industrial Development Certificates and their use in steering industrial building away from London. The claim is often made that too much building is allowed in the Home Counties. This may have been true for certain years, but it seems less valid now. At first sight, the 2·6 m. square feet erected in the Development Area of Wales in 1958 contrasts sharply with the 8·8 m. in the Home Counties, yet the figures work out at 3·7 sq. ft. for each insured worker in South Wales and 1·6 sq. ft. in the Home Counties. Precision is impossible, but allowing for the existing volume of capital in the South, the wealth of the area, the vast size of local service industries whose expansions cannot be steered away and the genuine economic attractions of the region to businessmen, it is doubtful whether a much tougher policy of steering new developments away from London would be possible without serious economic distortion. There are, however, two riders to this. The first is that as far as employment creation is concerned, office building is more important that factory building, for it appears that each thousand feet of office space built in Central London since the war was intended to contain 8 workers, while each thousand feet of factory space built in the Metropolitan Area in roughly the same period was intended for 1·3 workers. It would seem that office development certificates were as logical as industrial ones.

The second rider is that the Government would be able to refuse I.D.C.s in London with a clearer conscience if they had a more coherent policy for solving local unemployment. The first point is a side issue, the second a central one. Whether I.D.C.s were introduced or not, it is arguable that the combined effects of limiting development in congested areas and financing and subsidising them into high unemployment ones would not remove all patches of unemployment. Indeed, no policy of steering industry can eliminate unemployment everywhere except at great cost, not merely in subsidies, but in the loss of economic efficiency.

The authorities are clearly aware of this. Ministers have frequently pointed out that much less industry can be moved today than in the period just after the war. Sir David Eccles, moreover, has implied

that the main expansion in the near future will be in the heavy industries.[23] If this turns out to be true, the scope for steering industry will be further reduced. The placing of the new strip mill near Newport rather than in West South Wales is a sign of this. Altogether, it is time that we stopped pretending that everything will be solved solely by some variation on the 'work to the workers' theme. This make-believe is a great disservice to the unemployed.

There seems to be a need for two further steps. The first would be to achieve a greater co-ordination of policy and more long-term thinking. It would be easy to build up grandiose pictures of a Ministry of Long-Term Planning making vast and continuous surveys of all regions to spot all the growing and declining points well in advance and to take action accordingly. This is illusion. Few comments on distribution of industry policy have proved more accurate than Professor Dennison's remark, twenty years ago, that it would be supremely optimistic to expect it to be 'distinguished by thought for larger issues and long-period aims'.[24] Yet today may be the right time for one modest proposal, especially in view of the Radcliffe Committee's comments that 'a constant and profound diagnosis of the state of the economy' is needed[25] and of the Government's apparent regret at having lost interest in distribution of industry policy during the boom. It is now officially recognised that the authorities must continue to tackle the problem of local unemployment 'just as vigorously, if not more vigorously, in times of industrial expansion than in times when unemployment figures are high'.[26] If they are true penitents, the Government should make a few more appointments to the Economic Section of the Treasury to investigate long-term economic trends, and to examine actual policy and advise on desirable policy in their light.[27]

The second necessary step would be for the Government to abandon the belief that the only possible alternative to bringing work to the unemployed is to have more and more congestion in the Home Counties and Midlands.

[23] *Official Report*, 24th February, 1958; Vol. 583, c. 151. The expansion of consumer durables might seem as probable, but presumably the Board of Trade is in the best position to know which industries have the least surplus capacity.

[24] S. R. Dennison, *The Location of Industry and the Depressed Areas*, p. 121.

[25] *Report of the Committee on the Working of the Monetary System*, p. 337.

[26] *Weekly Hansard*, 14th May, 1959; Vol. 457, c. 1463 (speech by Parliamentary Secretary to the Board of Trade).

[27] I. D. M. Little's experiences as deputy director of the Economic Section, 1953-55, led him to comment, 'The Section is too small and too busy . . . for any profound study of longer-term policy issues.' See 'The Economist in Whitehall', *Lloyd's Bank Review*, April, 1957, pp. 35-8.

This is the central fallacy round which have revolved all recent parliamentary debates on local unemployment. It has been advanced, or accepted by implication, by members of both main political parties, including the Minister of Housing and Local Government, the Parliamentary Secretary to the Board of Trade, and Mr. Douglas Jay.[28] Parliamentary thinking on this subject is bedevilled to such an extent that it is useful to re-state the obvious point that the real choice is much more complex. Britain does not consist only of three or four vast and congested conurbations surrounded by great areas of sparsely populated countryside, dotted with small towns and suffering from varying degrees of chronic unemployment. Both these types of locality exist, but there are other kinds, including many medium-sized towns in which industry has prospered in the last century or more and which are numerous enough to disprove the idea that if work is not brought to the worker's doorstep he must inevitably drift to London or Birmingham.

This approach involves accepting the need for some increase in the geographical mobility of labour, but not all the movement would need to be long distance. An important contribution to solving the problem of local unemployment would be to seek consciously to build up employment in towns near to the pockets of unemployed. Unfortunately, it seems that the present policy, with its 4 per cent. rule, is designed to prevent this. There is a striking example in East Anglia. The areas eligible for assistance under the 1958 Act are two coastal strips in the north and centre of the region. These both extend some miles inland at certain points and Norwich, although outside the boundaries, finds itself largely surrounded by, but about seven miles from, the D.A.T.A.C. areas. This exclusion seems to be based on the argument that ' while the larger inland towns have special locational advantages . . . it is the coastal and country towns which are in particular need of diversification '.[29] This is an extreme example of the use of the self-designed straitjacket, but there are others, such as the original exclusion of Hull and the listing of bits of Lincolnshire, East Yorkshire, Carmarthenshire and Glamorgan.

It is true that the Act does not limit the advisory committee to recommending loans only in certain areas, it permits loans which are likely to reduce unemployment where it is high. This has been carefully

[28] See, for example, *Official Report*, 25th April, 1958; Vol. 586, c. 1308 and cc. 1322-3; *ibid.*, 30th April, 1958; Vol. 587, c. 407 and c. 486; *ibid.*, 31st July, 1958; Vol. 592, c. 1637 and c. 1682; *Weekly Hansard*, 19th March, 1959; Vol. 450, c 608.

[29] ' Progress in East Anglia ', *Board of Trade Journal*, 19th September, 1958, p. 561.

narrowed down by the Board of Trade so that a firm outside a D.A.T.A.C. area can hope for a loan only if it seems probable that this will lead the firm to offer additional employment, part of which will be secured by people travelling in daily from a D.A.T.A.C. area.[30] This is an unnecessarily narrow restriction. Mr. Patrick Maitland, M.P., has pointed out that a firm just outside a D.A.T.A.C. area might create new employment in that area simply by taking on local residents who had previously had to travel into the listed area for employment.[31] Such a firm would not qualify for a grant as the Act is at present administered. There are, of course, even more complicated possibilities than that postulated by Mr. Maitland. The Board of Trade should adopt a more flexible attitude on this matter and permit firms to be eligible for loans if the result is likely to be a direct or indirect decrease of unemployment inside a D.A.T.A.C. area.

The way in which distribution of industry policy seems to be operated reveals a failure to see regions as regions. It is an approach in terms of ten-mile squares in each of which full employment must be achieved and it harks back to the early, most mechanical, days of distribution of industry policy just after the 1945 Act. Far better to prescribe for the region as a whole and to recognise that while places such as South West England, Lincolnshire and East Anglia have different problems, including varying degrees of seasonal unemployment, they have more in common with each other than they have with Anglesey or the Scottish Highlands. In particular, the first group of areas have lower unemployment levels, are less remote from the industrial areas and lie near to, or include, sizable towns.

The build up of employment in such towns as Hull, Norwich or Middlesbrough seems to offer the best hope for these 'less remote' areas. To argue that, say, Norwich has too little unemployment to qualify is to miss the whole point, which is the need to attract industry to economically sound locations near to points of high unemployment. There are numbers of relatively low-cost areas in Britain where industry can grow. This does not mean that they can be left to their own devices. The need is to ensure that those which are nearest to the pools of unemployment grow the fastest. This is not merely a matter of listing them for D.A.T.A.C. purposes, although that would help. It is much more a matter of taking positive steps to reduce the frictions which hold back growth. These can include shortage of

[30] See 'Industry on the Move', the leaflet sent by the Board of Trade to 50,000 firms in January, 1959.
[31] *Weekly Hansard*, 2nd July, 1959; Vol. 462, cc. 685-6.

houses, poor transport, inadequate services for industry, and so on. To help eliminate these, certain towns could be given the full development area treatment, while the D.A.T.A.C. prescription continued for the surrounding areas. In addition, these towns could be provided with Vocational Training Centres by the Ministry of Labour. The argument that most training should be within industry is a good generalisation, but it is not entirely valid for areas into which new industries are being guided by the Board of Trade. The lack of training facilities is one more deterrent to the firm which is thinking of moving to an unfamiliar area. Official training centres could give the same training as existing ones, but might also co-operate with incoming employers in the training of newly-hired labour. This would also be a small contribution towards encouraging unemployed men to head for the nearby town instead of towards London or Birmingham.

The arguments for putting the main emphasis on concentration are familiar ones involving both the internal and the external economies of scale. It is obviously easier to improve roads, bus services, power supplies and technical college facilities for a town than for a number of widely scattered factories, while firms in or near towns are more likely to be handily placed for repair firms, customers, suppliers and other firms in similar lines of business to their own. For some manufacturers, differences of production costs at different locations are far more important than differences in transport costs, and thus it may be far less important to a firm to be located in the Midlands rather than South Wales or Yorkshire than to be in a suitable town rather than in the open country.[32]

This point is strengthened by the importance to the businessman of having sufficient labour available, for it is not unemployment percentages which determine whether a firm will get the workers it needs, but the numbers and types of unemployed. To guide a firm to a small place with 5 or 10 per cent. unemployed may limit the growth of the enterprise. The importance of this argument is strengthened by the fact that it is 'easier to persuade big firms to go to unfamiliar places than small ones',[33] for although big firms do not always mean big factories, there is a correlation. Moreover, the President of the Board of Trade has argued that firms will more cheerfully move to a new location if they believe that they will not meet unpredictable

[32] The new Pressed Steel plant near Swansea is not yet in production, but already certain firms which deal with the Cowley factory have been making enquiries about the possibility of renting a factory from the Wales and Monmouthshire Industrial Estates Company.

[33] Or so, at least, the President of the Board of Trade has discovered. See *Official Report*, 10th July, 1958; Vol. 591, c. 607.

troubles in a strange area and that the location is a good place to start in and grow.[34] Altogether, these seem excellent arguments for concentrating industrial development. Moreover, although Sir David Eccles made these points in support of his claim that the availability of a factory is not such an attraction to industrialists as is generally believed, these factors really strengthen the case for being prepared to build new trading estates at a small number of towns in or near the D.A.T.A.C. areas, and to relax the 'administrative de-scheduling' of prosperous parts of development areas near to D.A.T.A.C. ones.

The Government, however, seem to have made up their mind not to build new estates. This is apparently a compound of their experiences in trying to straighten out the trading estate rent subsidy muddle, the presence of empty factories on certain estates, the risks involved in building advance factories and the general feeling that a Conservative Government should make loans rather than build factories. These are not sufficient reasons for abandoning such an important instrument of policy. The muddle over subsidies can be ended by avoiding panic whenever a tenant firm threatens to quit rather than face a new rent assessment and by charging cover cost rents and offering other forms of subsidy.[35] The problem of empty factories is put into perspective when it is realised that in the 'depths' of the recession only 41 of 1,100 Board of Trade factories were empty, some in places economically less attractive than the sort of town we are concerned with at present. The problem of whether to build more advance factories can wait until it is seen whether the three being built today at Coatbridge, Holyhead and Speke are sought after or not. In any case, as building times are shorter than a decade ago, a policy of building tailor-made factories would be well worth while. Finally, on the question of loans versus factories, it should be pointed out that these are not substitutes. True, they both reduce the need to borrow from commercial sources, but the offer of a factory to rent is much more than capital-saving. To the businessman struggling with the difficulties of starting up a new branch or transferring his works, a rented factory enables him to concentrate mainly on the production side of the problem, in the knowledge that someone else will be doing most of the worrying about the provision of services, etc. This is one way in which an area can be made less strange and a location made to look a good place in which to grow.

All in all, there seems everything to be said for accepting the view of the relative unimportance of D.A.T.A.C. loans expressed by

[34] Ibid., c. 608.

[35] See A. J. Odber and P. J. Bowden, 'Rent Subsidies in the Development Areas', *The Journal of Industrial Economics*, October, 1958, pp. 40-3.

a Treasury official in 1955,[36] and equally the view of the vital importance of factories to rent expressed by Dame Alix Meynell, D.B.E.,[37] in the light of her experience as Under Secretary, Industries and Manufactures Department, Board of Trade.

These arguments are not intended to imply that no firm should go to a small village. There is, for example, the Pye Group who have put down some half dozen factories in rural Cambridgeshire and East Anglia. Here is a firm which believes that a high degree of independence brings out the best in a manager and which can give that independence in a way which might not be possible for many purely assembly or single product process firms. This experiment would be well worth careful study. Maybe, somewhere in, say, Bristol, there lurks a firm which with a little encouragement from the Board of Trade would scatter a few factories around the West Country.

As has been said, the above arguments apply to the less remote areas of unemployment. For the more isolated and sparsely populated districts such as the Highlands and Islands of Scotland or parts of North Wales, the Act seems to make more sense. Here, its strength lies in its realism. The refusal to schedule these places as development areas[38] comes from the recognition that mainly individual sites, rather than trading estates, are possible in the remoter districts, that such sites are expensive to build, to service and to administer, and that small factories located on their own are inclined to be vulnerable even in a mild recession. The dropping of the old criterion of 'the requirements of the proper distribution of industry' and the addition of the power to lend to non-industrial firms both implicitly recognise that greater results are likely from the strengthening of existing local establishments than from the guiding in of new firms.[39]

So much for 'work to the workers' and 'work fairly near the workers'. We must now consider the question of transferring workers from areas of high unemployment. It has long been argued that it is necessary to chose between transferring workers out and steering industry in, because to do both is to guide away the workers who are most

[36] Select Committee on Estimates, Development Areas, Q. 235 - Q. 237.

[37] '. . . to the question which inducement is the most powerful, I answer, without hesitation, the offer of factories to let, both "tailor-made" and those which are "off-the-peg"; for experience has shown that both have their attractions to industry large and small, rich and poor.' Dame Alix Meynell, D.B.E., 'Location of Industry', *Public Administration*, Vol. XXXVII, Spring 1959, p. 20.

[38] See *Official Report*, 30th April, 1958; Vol. 587, c. 392.

[39] This has since been explicitly recognised by the Parliamentary Secretary to the Board of Trade, *Weekly Hansard*, 2nd July, 1959; Vol. 462, c. 642.

in demand by the incoming employers.[40] This claim may be theoretically valid, but today, given that there are limits to the volume of industry which can be transferred in a year and that the problem will continue to be one of local unemployment in a period of prosperity, there is no real choice. Many of the best young workers will leave of their own accord. It seems sensible to accept this but to try to modify the pattern of movement.

This can be attempted in several ways. One, already suggested above for the less remote places, is to offer training in the nearby town where the main expansions are to be sought. This would help to protect the level of skills in the district. For the more remote areas, where unemployment is high and prospects of big increases in demand for labour are slight, a more generous resettlement transfer scheme may be necessary. The present scheme is a very small affair. Although it applies to numerous places with high unemployment, only 150 people were benefiting from it in September, 1958, and even that was a very high figure for recent years. Numbers rose after the scheme was modified in November, 1958, and reached 350 by June, 1959. The most important modification is that a worker is no longer required to give a prior undertaking that he will resettle in the area to which he is transferred. He is given six months grace in which to decide. This is a generous gesture, but the allowances remain small. They are intended to cover only some part of the cost of transfer and are still officially regarded as only a minor supplement to distribution of industry policy.

This attitude is almost exactly reversed in Sweden. There, the problem of unemployment is similar to ours, in cause, geographical unevenness and degree, but the solution is very different.[41] The main emphasis is on measures to promote the mobility of labour, and it is claimed that some four to five thousand people a month are being guided by the employment exchange to jobs away from home. This is partly a result of recent increases in the value of grants to workers who move to new jobs. The allowances have been quadrupled within one year, and they now include a £21 lump sum (compared with £10 in Britain) plus allowances for heads of families who have to leave their dependants at home. These consist of the value of the rent of the original home plus an allowance of £8 11s. per month for the wife and £2 14s. for each child under sixteen. In Britain there is a grant of 35s. per week towards extra rent, but no allowance based on family

[40] See E. A. G. Robinson's review of Dennison, *op. cit.*, *Economic Journal*, 1940, p. 269.

[41] See Bertil Olsson, 'Employment Policy During the Recession', *Scandinaviska Banken Quarterly Review*, April, 1959, pp. 58-60.

size. There is certainly a case for more generous treatment for people transferred from the really remote areas where unemployment is high and prospects bleak.

Benefits geared to the size of the family might encourage some rather older workers to move. Much more than this is needed, however, if there is to be anything approaching a more balanced transfer. The problem of the older unemployed has been examined in some detail, particularly by the National Advisory Committee on the Employment of Older Men and Women. There seems to have been much research but less action. One difficulty which faces older unemployed people is that some firms do not permit men over fifty to join their superannuation schemes. The Ministry of Labour could be empowered to pay some of the extra cost of taking into such schemes older workers transferred under the Resettlement Scheme. Another possibility, based on the opinion of the D.S.I.R. that an older worker requires a different type of training than a younger one, would be to start a small training centre for older workers only, a pilot scheme, in one of the higher unemployment areas.

At present, the Ministry of Labour claim that, despite intensified publicity, the facilities available under their General Vocational Training Scheme are not fully used. Only 778 persons completed courses of training under this Scheme in 1958 compared with 1,261 three years earlier. It seems likely, however, that numbers could be increased again if workers were attracted as they become redundant in declining firms or industries. The Ministry already operate a scheme, with the co-operation of employers, under which redundant workers are registered before being discharged so as to speed up re-employment. In problem areas, this could be extended so that training could be offered to redundant workers at rates of pay equivalent to their recent earnings, on condition that they agreed that, if necessary, they would accept work in other areas under the Resettlement Transfer Scheme, after completion of training. This maintenance of income during training, which is precisely what the Armed Services do for their members if a branch or trade is reduced in size, would be a more attractive proposition than the present one. If required, for areas where an industry is in secular decline, it could be extended to workers already dismissed.

Such schemes may sound expensive, but the very generous Swedish schemes of training and transfer have been described by Bertil Olsson as ' very cheap as compared with many other measures '.[42] They would

[42] *Op. cit.*, p. 57.

certainly save heavy subsidies on factories in isolated areas[43] and reduce the risk that economic growth would suffer.

It would be idle to suggest that bigger grants would solve the problem of immobile labour, although they have clearly had some effect in Sweden. There are psychological barriers which are beyond the limits of this paper. There is, however, one further practical problem which can be discussed, the shortage of houses. There is a need to re-think national housing policy to reduce the effects of shortages on the geographical mobility of labour. One possibility would be to require local authorities in expanding areas to set aside a proportion of their new houses for new arrivals. They could rent them to their own residents only if insufficient newcomers came forward. It might be possible to link this system to the Resettlement Transfer Scheme so as to make the latter more popular. There would be administrative difficulties, but this would be a far better method than the present one operated by certain local authorities, of requiring a long residence qualification, in some cases of ten years, before a person can be allotted a house.

There is also the problem of how to reduce the shortage without allowing house building to receive too great a share of national resources. One obvious move would be to ensure that most building is in the expanding areas. Since the war, the development of places like Tees-side has been slowed by housing shortages. These, in turn, have been aggravated by the building of houses in declining areas, including parts of West Durham. Bricks and bricklayers cannot be in two places at once. It is not enough for the Minister of Housing to say that he has 'told nearly every local authority in England and Wales that it can have the full programme [of house-building] it has asked for'. He unwittingly condemns his own policy by adding in the next sentence, 'If more houses are needed the initiative lies with the local authorities to ask for them.'[44] This ignores the fact that not all local authorities are far-sighted, not all are willing or able to build sufficient houses for future local needs and some are far too willing. Moreover, showing the green light to all now may mean that their plans will be mutually incompatible again by 1960. There is thus a case for more central control of publicly-owned house-building to determine the locations, even if the actual building and letting is left largely in local hands.

The theme of this paper is that there is no point in trying to fight all the long-term economic trends. There is no point in trying to guide

[43] In parts of Scotland, a factory employing 100 men may enjoy a rent subsidy of roughly £3,000 a year for 21 years, with no certainty that the subsidy will end after that.

[44] *Weekly Hansard*, 30th June, 1959; Vol. 462, c. 225.

industry mainly to the village where the normal movement is towards the town. There is no point in seeking a balance of demand for and supply of labour in each rural district, when many young workers also prefer the amenities of town life. The solution is not to meet economic forces head on, but to try to control them more subtly, accepting some trends as unavoidable, striving to accelerate others which can help fight our battles for us and diverting the rest into more desirable paths. Sensible planning will use natural forces, not collide with them.[45]

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[45] This article was completed at the end of August before the announcement by the then President of the Board of Trade of yet another new attempt to cure local unemployment. The new bill has not been published at the time of writing and it is impossible to comment in detail on the Government's proposals on the basis of newspaper reports. It seems, however, that the authorities have, after all, taken some note of the *Douglas Jay Report*, for they propose to clear more derelict sites and to centralize certain of the administration under the Board of Trade. There is apparently to be no additional co-ordination between departments so as to harmonize distribution of industry policy, house-building and the official training and transfer of labour. Indeed, it seems that there will be no real change of policy but mainly increased doses of the same old medicine despite the slowness of the patient to respond. There will apparently still be the guidance of industry to places with unemployment, whether or not these are economically suitable, and still the payment of subsidies on overheads despite the fact that in some cases the main problem is of high variable costs. The proposed introduction of capital grants towards the building of private factories seems to underline the point made on p. 223 above that the Government is apparently reluctant to build new estate factories and does not recognize that these are far from mere capital-savers to the entrepreneur. Final judgment on all this, however, must await the publication of the bill, but the indications are that *The Economist* is on firm ground in saying (19 September, 1959, p. 949) that the intended changes 'are mainly matters of detail'.

REGIONAL INPUT-OUTPUT ANALYSIS AND GOVERNMENT SPENDING

I

ANALYSES of the economic activities within a particular region may be partial in nature, as when a particular industry is examined, or general, as in a regional income study. Again, an analysis of a region may or may not pay particular attention to the inter-relations with other regions within the national economy. A regional income study may do so if, for example, an attempt is made to compute the regional balance-of-payments.

In this paper we are concerned with differential effects on regions of the decisions of a common institutional spender, the government, which is largely concerned with decision-making on a national, rather than a regional plane. The size and pattern of government expenditure may assist in the development of some regions much more than others, but this fact may be of secondary importance in the formation of spending decisions. This is because the total size of government expenditure is contingent on many 'national' factors, e.g., uniformity in the standard of health services; and government purchasing decisions will take into account, among other things, relative cost conditions which will cut across regional conditions.

This problem is particularly germane to the position of Scotland at present. The change-over in types of defence expenditure has led to a good deal of speculation about the extent to which the government is 'responsible' for the creation of a higher rate of unemployment in Scotland than in other parts of the country and concern that economic may over-ride social considerations in the regional allocation of government purchases. On the other hand, if the agitation to increase government orders in Scotland were successful, then the resultant income and employment effects might have quite complicated regional and national repercussions which should be taken into account in any attempt to formulate a consistent economic policy.

We shall proceed on the assumption that a rather higher level of unemployment (or inflation) in one region, compared with another, is insufficient to justify, *ipso facto*, an increase (or decrease) in overall government spending. Global government expenditure is, therefore, assumed constant henceforward.

It will be intuitively clear that the *pattern* of the fixed government expenditure will affect the *pattern* of regional incomes and employment. How it does so is the question we shall analyse here. If we could determine the changes in employment consequent on changes in the expenditure pattern, it would be possible to state (a) what reductions in which expenditures had been most damaging to the regional economy, (b) what expansion in which expenditures would most quickly remedy the situation.

We may say straightaway that no practical answers are possible for these practical questions, given the present state of knowledge. Our theoretical analysis in Sections II and III will show that a rather elaborate statistical framework for a region is necessary. The real purpose, at the present time, of such an analysis is precisely to give a lead and direction to data-collection, a theme taken up in Section IV.

II

In considering the income and employment effects of government expenditure, the Keynesian multiplier analysis as applied to fiscal policy springs to mind. It is clear, however, that it will not help our analysis, at least in its usual form, since it relates to changes in the global level of government expenditures in relation to national income. As we are interested in the regional redistribution of government expenditures and the consequent regional redistribution of income and employment, then we must employ some extension of the analysis which allows for disaggregation of national totals. The model we use combines the Leontieff and neo-Keynesian approaches. It is similar to the model used by Professor Leontieff in his regional input-output study in *Studies in the Structure of the American Economy* (1953), Chapter 4. However, as we wish to study income and employment effects in particular, we have to embody in the model, assumptions regarding the spending behaviour of households. This leads us to combine the Leontieff approach with that employed by Goodwin in his justly famous article, 'The Multiplier as Matrix', *Economic Journal*, 1949.

We define a vector G as the changes, in some period, in the distribution of government spending among all national industries or sectors. The vector of sector outputs is denoted by Y and the overall matrix of technological coefficients, representing the structure of the national economy, by A.

In order to include the functions connecting incomes and expenditures (aggregated into the marginal propensity to consume in Keynesian multiplier analysis), we define the p^{th} sector as Scottish households

selling labour to Scottish industries, but distributing expenditures among all national sectors. Similarly the n^{th} sector represents English households acting in a similar way.

Thus our sectors are n in number:

$$i = 1, 2, \ldots, p, p+1, p+2, \ldots, n.$$

We regard investment as autonomous and fixed. Foreign trade is ignored, though this could be fairly easily included. We can then write the model as follows:

$$\begin{bmatrix} Y_1 \\ Y_2 \\ Y_3 \\ Y_4 \end{bmatrix} = \left[\begin{array}{c|c|c|c} A_{11} & A_{12} & A_{13} & A_{14} \\ \hline A_{21} & 0 & 0 & 0 \\ \hline A_{32} & A_{32} & A_{33} & A_{34} \\ \hline 0 & 0 & A_{43} & 0 \end{array}\right] \begin{bmatrix} Y_1 \\ Y_2 \\ Y_3 \\ Y_4 \end{bmatrix} + \begin{bmatrix} G_1 \\ 0 \\ G_2 \\ 0 \end{bmatrix}$$

The vector of outputs Y, the matrix of technical coefficients A, and the vector of changes in government expenditure G are partitioned and each partitioned vector or matrix is to be interpreted as follows:

Y_1 = A column vector of $p-1$ output changes of Scottish industrial sectors.

Y_2 = A scalar indicating the change in output of the p^{th} sector, Scottish households, i.e., Scottish net domestic income.

Y_3 = A column vector of $n-p-1$ output changes of English industrial sectors.

Y_4 = A scalar indicating the change in English net domestic income.

A_{11} = A matrix of coefficients relating to transactions between Scottish industries.

A_{12} = A column vector of coefficients relating to the purchases of Scottish households from Scottish industries.

A_{13} = A matrix of coefficients relating to Scottish industrial sales to English industrial sectors.

A_{14} = A column vector of coefficients relating to English households' purchases from Scottish industries.

A_{21} = A row vector of coefficients relating to Scottish household sector sales to Scottish industries, i.e., labour coefficients.

A_{31} = A matrix of coefficients relating to English industrial sales to Scottish industries.

A_{32} = A column vector of coefficients relating to purchases of Scottish households from English industries.

A_{33} = A matrix of coefficients relating to transactions between English industries.

A_{34} = A column vector of coefficients relating to English households' purchases from English industries.

A_{43} = A row vector of coefficients relating to English households' sales to English industries, i.e., labour coefficients.

G_1 = A column vector of changes in government expenditure on the products of Scottish industries.

G_2 = A column vector of changes in government expenditure in English industries.

The null vectors appearing in A are accounted for by Scottish and English households' absence of sales to each other's industries. The null scalars in G confine this model to studying government industrial contracts; positive entries would stand for direct payments to households, i.e., social service benefits.

The model is solved by the usual Leontieff inversion procedure:

$$\begin{aligned} Y &= AY+G \\ Y-AY &= G \\ (I-A)Y &= G \\ Y &= (I-A)^{-1}G \end{aligned}$$

That is, the vector of industrial output and regional income changes is given by the operation of the matrix multiplier on the changes in the government expenditure pattern.

III

Before we work through a simple example, some further technical commentary on our model is desirable.

Marginal propensities to consume, on account of each sector, are implicit in the model. Thus the Scottish aggregate marginal propensity to consume of households is given by

$$\sum_{1} a_{ip} \; (i=1, 2, \ldots p-1, p+1, \ldots, n-1)$$

No explicit reference has been made to government revenues. Marginal rates of income (or sales) taxes could be included in the model. It is simpler, however, to define marginal propensities to consume as proportions of income spent, where the remainder is composed of savings-and-taxes.

The equilibrium vector of industrial outputs and regional incomes occurs in such a model, of course, when aggregate ' leakages ' equal aggregate ' injections '.

We have held constant total injections from government and investment; all consumption is endogenous so does not enter into the ' injections ' total; foreign trade is ignored. Hence, in the changed situation, total possible ' leakages ' (savings and tax payments of all sectors) must be the same as in the original situation. However, total outputs of sectors, regional incomes, and the totality of all transactions need not remain the same. Indeed the whole system will expand or contract, globally and in particular parts. For the changes in the government spending pattern will alter total savings and tax ' leakages ', according to different sector marginal propensities to consume, and the whole system must shift until global ' leakages ' are as before.

At the new equilibrium, Scottish industries will be different in size, as the Scottish domestic income is likely to be. Finally, the use made of the Scottish labour force will almost certainly be different.

IV

We shall now give a simple numerical example to illustrate the use of the model, and make its assumptions and implications clearer.

Let us aggregate all Scottish industries into the ' Scottish production sector '. We do the same with English industries, and we are left with a four-sector analysis. It becomes an exercise in social accounting, rather than the more usual input-output analysis, for our sectors are now the Scottish production and consumption sectors, and their English counterparts.

What happens to our model is that all the partitioned vectors and matrixes now become simple elements, or, as in the case of those partitioned matrixes which denoted inter-relations within the Scottish and English production sectors, they become zero elements.

Thus we can rewrite our equation system as follows:

$$\begin{bmatrix} y_1 \\ y_2 \\ y_3 \\ y_4 \end{bmatrix} = \begin{bmatrix} 0 & a_{12} & a_{13} & a_{14} \\ a_{21} & 0 & 0 & 0 \\ a_{31} & a_{32} & 0 & a_{34} \\ 0 & 0 & a_{43} & 0 \end{bmatrix} \begin{bmatrix} y_1 \\ y_2 \\ y_3 \\ y_4 \end{bmatrix} + \begin{bmatrix} g_1 \\ 0 \\ g_2 \\ 0 \end{bmatrix}$$

The interpretation is similar to the earlier case, but simplified. The elements y_1 and y_3 represent Scottish and English gross production,

y_2 and y_4 the respective net domestic income. The elements a_{ij} (i, j= 1, 2, 3, 4) denote the inter-relations in the system; the Scottish marginal propensity to consume is equal to $(a_{12}+a_{32})$, the English to $a_{14}+a_{34}$); a_{21} is the Scottish production sector's labour coefficient, and a_{43} that of the English production sector; the remaining coefficients a_{31} and a_{14} represent purchases each way between Scottish and English production sectors.

Suppose the matrix of coefficients is given the following numerical value:

$$\begin{bmatrix} 0 & \cdot 30 & \cdot 35 & \cdot 40 \\ \cdot 75 & 0 & 0 & 0 \\ \cdot 25 & \cdot 30 & 0 & \cdot 40 \\ 0 & 0 & \cdot 65 & 0 \end{bmatrix}$$

Hence, the Scottish marginal propensity to consume is 0·60, the English 0·80. The marginal propensity to consume of the production sectors is assumed to be unity, which, of course, is not a necessary assumption.

Now, government expenditure on Scottish production declines by 100 units, and is replaced by 100 units of new spending on English production.

We arrive at the following set of equations:

$$\begin{aligned} y_1 &= \cdot 30y_2 + \cdot 35y_3 + \cdot 40y_4 - 100 \\ y_2 &= \cdot 75y_1 \\ y_3 &= \cdot 25y_1 + \cdot 30y_2 + \cdot 40y_4 + 100 \\ y_4 &= \cdot 65y_3 \end{aligned}$$

On solving these simultaneous equations, we arrive at the following values for y_i (i=1, 2, 3, 4) to the nearest whole number:

$$\begin{aligned} y_1 &= -\ 45 \\ y_2 &= -\ 34 \\ y_3 &= +106 \\ y_4 &= +\ 69 \end{aligned}$$

The interesting feature of this result is that, while Scottish production and net incomes would fall and English production and net incomes would rise, the total *national* level of production and net incomes shows a net rise, even with no change in the total amount of government spending. A redistribution of government purchases by altering regional income levels, alters the aggregate marginal pro-

pensity to consume for the whole economy because of the different (assumed) spending habits of each region. A simple Keynesian fiscal policy model would not demonstrate this. Thus in our example British production shows a net rise of 61 units, and net domestic incomes 35 units. In the particular case of Scotland, the reduction by a 100 units of government spending does not cause an equivalent decline in Scottish production, but only one of 45 units matched by a fall of 34 units in Scottish net domestic income. This is because the offsetting growth in English production and incomes causes an expansion in ' imports ' in England from Scotland.

Since ' injections ', in the form of investment and total government expenditure, remain unchanged, total ' leakages ', in the form of savings and tax payments, must also remain unchanged in our system.

This is confirmed by reference to the figures. Scottish household incomes fall by 34 units, and since the marginal propensity to save (combined with the marginal tax rate) is 0·40, savings-cum-tax payments decline by 14 units.

English household incomes rise by 69 units, and with the assumed marginal propensity to consume of 0·80, the rise in savings-cum-tax payments will equal (0·20 × 69), which gives a rise of 14 units.

V

Our analysis is, we would claim, realistic in one sense, unrealistic in another. It is realistic in that it indicates an important policy problem, and gives a complete picture of that problem. By this we mean that the common mistake of looking only at the first impact effect of a government expansionary programme is avoided. If take-up of unemployed workers is the criterion in placing a new contract, it is feasible that its placement in an English sector, with a very high Scottish labour-intensive input, would do more for Scotland than the expansion of a Scottish industry heavily dependent on English inputs. All such repercussions are, of course, covered by the model.[1]

Our model, as it stands, is obviously unrealistic in a statistical sense. We offer two defences to such a criticism. In the first place, much simplification can take place by aggregation and the model still remains interesting. Secondly, models such as this give a systematic line of approach for data collections; as this proceeds, wholesale aggregation will perhaps not be necessary.

Statistics required lay in three main fields. The first consists of input-output coefficients, which are now becoming available in this

[1] We fully realise that our model embodies the familiar limiting assumptions of Leontieff models and Keynesian static analysis.

country, though division of industries into regions might present difficulty. In the case of common industries, however, since we are only interested in input proportions, the same set can be used in each regional industry. The second general requirement is information on government spending programmes. This is at present a matter of study in the Department of Political Economy in the University of Edinburgh, but it is significant that it has so far only been possible to provide information for 1948.[2] The third field in which information is desired is consumer spending habits in different regions and among different goods. The recent Household Expenditure Survey provided information along these lines, but not on a regional basis.

It can certainly be claimed that governments are forced to think about regional economic problems if only because of pressure from local business and trade union interests. At the moment, however, while there may be systematic thinking among economists about economic analysis as applied to regions, they can offer little guidance to policy makers unless the latter are prepared to make it easier to obtain statistical raw material.

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[2] See the article by Mr. J. Veverka in this issue.

PURCHASES BY PUBLIC AUTHORITIES IN SCOTLAND

I

THE regional distribution of purchases by public authorities may have some bearing on the question of the regional differences in relative economic growth. Public authorities, either central government or local authorities, are the most important single buyers from the private sector. A region favoured by purchases by public authorities will, other things being equal, show a faster rate of growth than a similar region which sells relatively less to public authorities.

Yet the influence of the government on the economy through its purchasing policy has been relatively less stressed than its impact through other means, such as monetary and fiscal policy. Correspondingly, the literature dealing with this aspect of government economic policy is scarce, if not non-existent. One reason for this state of affairs is the lack of relevant statistical information. The limited nature of the material available, and consequently the impossibility to generalise from our conclusions, will clearly emerge from this paper.

II

A purchase of a good from a private sector must appear either in the accounts of central government, in the Appropriation Accounts, or in the accounts of one of the many local authorities, summarised in *Local Government Financial Statistics*. Every purchase is thus recorded, yet these records are of no value for our purpose. The criteria used there are accounting rather than economic. The only available information is the value of purchases by public authorities from each industry, given in the Census of Production only.

Unfortunately, the only published information on the regional distribution of government purchases which is limited in its nature, is more than a decade old. The only post-war Census which records regional distribution is the 1948 one. From 1948 to 1958 Government purchases valued at constant prices went up by almost a third. Yet the analysis of the situation as it existed in 1948 may still be of interest.[1] An attempt has, therefore, been made to evaluate the importance of purchases by public authorities in Scotland and compare them with the situation prevailing South of the Border. A further limitation is

[1] The Board of Trade kindly supplied us with more detailed information than that given in the Census of Production reports.

that the regional classification thus provided is confined to about half of the industries. More precisely, the industries covered in the Board of Trade figures, and consequently in the calculation, represent 52 per cent., measured either in net output or in employment, of total manufacturing output in Great Britain. The coverage is slightly higher for Scotland than for England and Wales, the relevant percentages being 52 and 45 in terms of output, and 53 to 47 in terms of employment. The industries covered supply about 48 per cent. of goods and services bought by public authorities from manufacturing industries. The conclusions as to the relative importance of purchases of manufacturing output in Scotland as compared with England and Wales strictly apply to the industries covered, or to about half of the output in Great Britain.

III

In 1948 all public authorities in Great Britain bought manufactured goods worth £186 m., which represented 4·5 per cent. of the value of total gross output. The importance of these purchases, measured in gross output, was relatively higher in England and Wales than in Scotland; only 3·4 per cent. of Scottish manufacturing output was sold to public authorities whereas in England and Wales the proportion was 4·6. Any comparison based on gross output only is not sufficient. Almost half of gross output consists of payments for raw materials, fuel, etc., which do not generate either income and/or consumption, and do not add to national product. The proportion of net output to gross output varies according to industry, and possibly according to region. A considerable regional differential in the ratio of net to gross output would make the comparison based on gross output meaningless. Yet the value of net output purchased (or rather generated) by purchases by public authorities cannot be directly obtained. It has been assumed that the ratio of net to gross output is identical in each industry, and in each region, in sales to public authorities and in sales to other buyers. If this assumption is accepted, then the value of net output purchased, or generated, by public authorities is easily obtained by reducing the value of sales to public authorities by the net output/gross output ratio. In terms of net output, the purchases of manufactures by public authorities were slightly more important. Out of the £1,939 m. of net manufacturing output in Great Britain, 6·1 per cent. was generated by these purchases. Scotland is even more below England and Wales than in the comparison based on gross output, 3·6 per cent. of net output being generated in Scotland, and 6·3 per cent. in England and Wales.

The third measure of the relative importance of these purchases is their effect on employment. On the assumption that the labour content, in a given industry and in a given region, of the sales to public authorities is the same as the labour content of the other sales, the aggregate labour content in each region can be calculated. The calculation leads to the same conclusion as arrived at above, only the difference between Scotland and England and Wales is slightly greater. The employment generated by sales to public authorities represents 6·3 per cent. of total employment in manufacturing industries in Great Britain, the Scottish ratio being 3·6 per cent., the English one 6·6 per cent. The comparison between the regional differences of the purchases by public authorities expressed in terms of generated employment with that expressed in terms of net output suggests that the public authorities were buying on the average in England and Wales more labour-intensive goods than in Scotland, and this in spite of the fact that Scottish output on the average is more labour-intensive than the output in the rest of the country.

The position of Scotland as seller of manufactures to public authorities can be illustrated by another set of figures than those quoted above. Measured either in net output or employment, Scottish manufacturing represents about 8 per cent. of the Great Britain totals. This is in contrast with a figure of less than 5 per cent. of the total net output or employment generated by purchases by public authorities which were directed to Scotland.

Hitherto we have dealt with the regional aggregates only. It might prove interesting to inquire how the discrepancy in the relative importance of purchases by public authorities manifests itself in individual industries. This has been done in Table II. All Scottish manufacturing industries employing over 5,000 persons are included and are ranged according to their size, so that the reader can see which are the more important industries in Scotland, which are covered and which are excluded. Whereas only 47 per cent., measured in terms of employment, has been included in the Board of Trade figures, the coverage in the group of industries employing 5,000 or over is considerably higher, namely 87 per cent. Out of the employment of 10,600 generated by purchases by public authorities, 9,700 were in this group. A detailed discussion of the individual industries will not be attempted. The reader can see for himself how the employment generated by purchases by public authorities is distributed among individual industries, and finally how Scotland compares with England and Wales in individual industries.

TABLE I

PURCHASES BY PUBLIC AUTHORITIES AND EMPLOYMENT IN SELECTED MANUFACTURING INDUSTRIES,[a] CENSUS 1948

	Total output and employment			Purchases by public authorities[d]			Purchases by public authorities as percentage of total		
	Gross output (Production)	Net output[b]	Employment[c]	Purchases of gross output	Imputed purchases of net output	Employment generated by public authorities purchases	Gross output	Net output	Employment
	(£m.)	(£m.)	(000s)	(£m.)	(£m.)	(000s)	%	%	%
Great Britain . .	4,130	1,939	3,511	186·2	118·9	222·3	4·5	6·1	6·3
England and Wales .	3,803	1,790	3,214	175·2	113·5	211·7	4·6	6·3	6·6
Scotland . . .	327	149	297	11·0	5·4	10·6	3·4	3·6	3·6
Scotland as percentage of Great Britain .	7·9	7·7	8·5	5·9	4·5	4·8			

[a] Industries covered by the Board of Trade figures. The sample covers 41 per cent., if measured in gross output, or alternatively 52 per cent., measured either in net output or employment, of all manufacturing industries in Great Britain.

[b] Gross output less cost of materials and fuel used and payment for work done on materials given out.

[c] Average number of persons employed.

[d] Central government and local authorities (other than productive establishments).

Sources: Regional distribution of purchases by public authorities. Information kindly supplied by the Board of Trade in connection with the Government purchasing research project of the Department of Political Economy in the University of Edinburgh. All other data: Board of Trade Census of Production for 1948 (Final Report).

TABLE II

PURCHASES BY PUBLIC AUTHORITIES AND EMPLOYMENT IN SCOTTISH MANUFACTURING INDUSTRIES EMPLOYING OVER 5,000 PERSONS, CENSUS 1948

Industry	Employment in Scotland (000s)	Labour content of purchases by Scottish public authorities (000s)	Public purchases as percentage of gross output	
			Scotland %	Great Britain %
Mechanical engineering	65·1	2·15	3·3	4·3
Shipbuilding	55·9	...	...	3·5
Iron and steel (melting)	25·1	...	...	·7
Tailoring, dressmaking	23·5	·94	4·0	3·0
Marine engineering	21·6	...	...	4·6
Bread and flour confectionery	21·5	...	...	·8
Iron foundries	19·2	2·20	11·5	6·1
Printing other than periodicals	17·7	·64	3·6	6·3
Woollen and worsted	17·2	·10	·6	1·2
Jute	17·0	...	...	1·8
Paper and board	14·6	·50	3·4	2·2
Hosiery and other knitted goods	13·5	·05	·4	1·2
Constructional engineering	12·1	·18	1·5	11·0
Timber	11·4	·42	3·7	8·3
Linen and soft hemp	10·0	...	...	9·7
Rubber	10·0	·15	1·5	1·5
Explosives and fireworks	9·2	...	...	8·2
Brick and fireclay	8·8	·25	2·8	5·0
Railway locomotives	8·2	...	...	1·3
Newspaper and periodical printing	7·7	·05	·7	·7
Aircraft	7·4	...	...	34·7
Cotton spinning and doubling	7·4	...	...	·3
Carpets	7·3	...	...	·5
Hardware, etc.	7·2	·24	3·3	4·0
Electrical engineering	7·2	·56	7·8	10·1
Wholesale bottling	7·0	...	...	—
Building materials	6·6	·50	7·6	14·1
Brewing and malting	6·6	...	...	—
Furniture and upholstery	6·5	·49	7·6	4·1
Railway carriages, etc.	6·4	...	...	2·3
Non-ferrous metals	5·9	...	...	10·6
Biscuits	5·8	...	...	·6
Chemicals (general)	5·7	·14	6·3	2·4
Chain, nail, etc.	5·5	·11	1·9	1·7
TOTAL	481·8			
of which covered by Board of Trade figures	259·5	9·67		

Symbols: ... not covered by Board of Trade figures; — less than 0·5.

IV

The arithmetic exercise described above has shown a difference in output sold to public authorities in England and in Scotland. There might be a tendency to link the findings to another statistical datum, namely the much slower rate of increase of manufacturing output in Scotland than in the rest of the country. In the ten years following 1948, when a separate index for Scotland was computed, manufacturing output rose by 32 points while the United Kingdom index showed a rise of 44 points. Yet before reaching any policy-making conclusions, the following points must be kept in mind. Firstly, the coverage of the sample is limited, only about half of industrial output being included. Secondly, the figures represent the situation as it existed in 1948. Since then total purchases of goods and services by public authorities has risen by more than a third, measured in real terms, and output of manufacturing industries has grown even faster. The composition of output, and the composition of public purchases, must have changed to such a degree as to make the 1948 figures only rough indicators of the present situation. The actual figures for to-day, were they available, might show a considerable deviation from the 1948 figures. Thirdly, both central government and local authorities (other than productive establishments) are included. Although the purchases by local authorities represent only about 15-20 per cent. of the total, at least part of the difference between Scotland and the rest of the country might be explained by differences in the activities of local government. No attempt has been made to establish whether such a situation prevails, because of the lack of statistical information.

The final warning is of a general nature. Regional economic policy cannot be based on a regional difference in one aggregate only. Thus problems of expenditure cannot be discussed without reference to the provision of the necessary finance. This problem is beyond the scope of this paper.

J. VEVERKA

University of Edinburgh

CURRENT TOPICS

THE BURN

The programme for the ninth annual conference of the economists of the Scottish Universities at 'The Burn', Edzell, from 14th to 16th September, included papers by Professor S. G. Checkland on 'The Rostow Manifesto', Mr. T. L. Johnston on 'Capital Theory and Forest Policy', and Mr. P. O'Leary on 'Income Measurement and Price Changes'. A discussion on the Radcliffe Report was introduced by Professor A. K. Cairncross.

BRANCH MEETINGS

At the time of going to press the following programmes had been arranged for the coming winter by the local branches. Local secretaries (to whom enquiries and suggestions should be directed) will be issuing notices to members in their areas.

EDINBURGH

(*Secretary*: Dr. M. T. Rankin, 51 George Square, Edinburgh 8.)

14TH OCTOBER, 1959. 'British Economic Thought and Policy between the Wars'—Professor A. J. Youngson, University of Edinburgh.

6TH NOVEMBER, 1959. Joint meeting with the Royal Geographical Society at 7.30 p.m. in the Central Hall, Tollcross. 'International Problems'—Mr. J. P. Cole, University of Nottingham.

4TH DECEMBER, 1959. Social Meeting (Sherry), 5.30 p.m.-7 p.m., in the University Staff Club, Chambers Street.

20TH JANUARY, 1960. 'Under-development in East and Central Africa'—Professor D. T. Jack, University of Durham.

15TH FEBRUARY, 1960. 'The Economic Development of Nigeria in the Post-war Period'—Mr. I. G. Stewart, University of Edinburgh.

7TH MARCH, 1960. Joint Meeting with the Edinburgh Agricultural Economics Discussion Circle.

All meetings except those on 6th November, 4th December, and 7th March, will be held in the Hall of the Institute of Chartered Accountants, 27 Queen Street, Edinburgh, at 7.45 p.m.

GLASGOW

(*Secretary*: M. Gaskin, D.F.C., Department of Political Economy, The University, Glasgow, W.2.)

23RD OCTOBER, 1959. 'Bancor: A Solution to the Problem of International Liquidity?'—Professor Brian Tew, University of Nottingham.

10TH DECEMBER, 1959. 'Some Problems of New Town Planning and Development'—by Mr. D. R. Diamond and Mr. E. B. Gibb, Departments of Geography and Political Economy respectively, University of Glasgow.

21ST JANUARY, 1960. 'Management and Economic Development'—Professor David Granick, University of Wisconsin.

It is hoped to arrange other meetings of which details will be announced later. All the above meetings will take place at the University.

DUNDEE

(*Secretary*: Dr. I. F. Gibson, Department of Economics, Queen's College, Dundee.)

22ND OCTOBER, 1959. A talk by Professor Brian Tew, University of Nottingham, subject to be announced. Venue: Conference Room, Jute Industries Building, Meadow Place, Dundee.

29TH OCTOBER, 1959. Members are invited to attend the Third Bowie Memorial Lecture which will be delivered in the Hall of Queen's College, Dundee, by Professor D. T. Jack, University of Durham.

NOVEMBER/DECEMBER, 1959. 'The Restrictive Trade Practices Act'—Professor A. D. Campbell, University of St. Andrews.

Full details of these meetings and of the programme arranged for the second part of the session will be sent to local members.

ABERDEEN

(*Secretary*: M. M. B. Mulligan, c/o Burnett & Reid, 12 Golden Square, Aberdeen.)

29TH OCTOBER, 1959. 'The Paper Industry and the "Outer Seven" Trading Area'—Mr. W. Tait.

29TH NOVEMBER, 1959. 'The Location of Industry in North East Scotland'—Mr. L. S. Barrus.

Tentative arrangements have been made for meetings in early 1960 on 'Investment Trusts' and 'Human Relations in Industry'.

ST. ANDREWS

Meetings will be arranged in conjunction with the Political Economy Club of the University; details from Professor J. W. Nisbet, Department of Political Economy, St. Salvator's College, University of St. Andrews.

BOOKS RECEIVED

Trade Unions in a Free Society, by B. C. Roberts. (Institute of Economic Affairs, London, 1959. 9s. 6d.)

The International Executive, Spring 1959, Volume 1, Number 2. (The Foundation for the Advancement of International Business Administration, New York. $4.75.)

The New York Foreign Exchange Market, by Alan R. Holmes. (Federal Reserve Bank of New York, 1959. 50 cents.)

Conjonctures économiques d'hier, d'aujourd'hui, de demain: Récession ou Crise? by Georges Hartmann. (Editions Générales S.A., Genève, 1959. Fr. 14.90.)

Output, Employment, Capital, and Growth, by Hans Brems. (Harper & Brothers, New York, 1959.)

Domestic Food Consumption and Expenditure: 1957. Annual Report of the National Food Survey Committee. (H.M.S.O., London, 1959. 8s. 6d.)

Hire Purchase in a Free Society, Second Edition, by Ralph Harris, Arthur Seldon and Margot Naylor. (Institute of Economic Affairs, London. 9s. 6d.)

The Poor Man's Guide to the Stock Exchange. (Labour Research Department Publications Ltd., London, 1959. 6s.)

The Social Evolution of Industrial Britain, by L. G. Johnson, Liverpool University Press, 1959. 25s.)